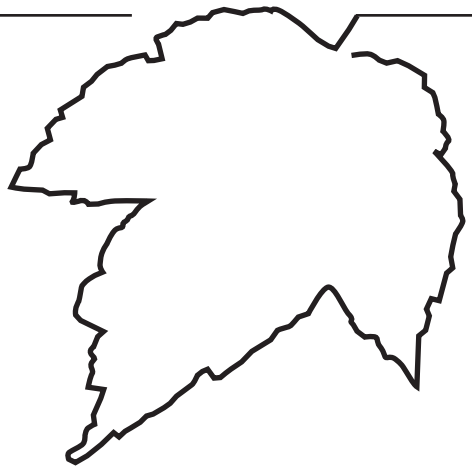

Digital Narrative Project

for macromedia® FLASH® 8

Communicating Information and Ideas in Science and Other Disciplines

British English Version

macromedia® EDUCATION

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Digital Narrative Project for Macromedia Flash 8
Communicating Information and Ideas in Science and Other Disciplines

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Introduction

In the Digital Narrative project, you will build an online narrative presentation. You begin by gathering information about the topic of the digital narrative. You produce a design document, including a script and a storyboard. Then you use Macromedia Flash 8 to create a narrative which contains text, images, animation, and sound. You create a title page that flows into pages illustrating a concept. You can create additional pages if you wish to expand the project or if the topic you select requires additional pages.

This project book includes step-by-step directions for each lesson to help you plan, build, and test a digital narrative. Instructions are illustrated with completed pages for a sample narrative about leaves.

Gathering the Project Assets

The Digital Narrative project uses a Flash template. You need to download the template from the Macromedia website and instal it. You can use this template whether you choose to design your own narrative or complete the sample "Why Do Leaves Change Colour?" narrative illustrated in this book.

Presentation Template Asset

To download and instal the template:

1. Go to *www.macromedia.com/go/digitalnarrative8_uk/*.
2. Scroll down to the Narrative Template section and click the file.
3. Select the saving location for the file on your computer. (Be sure to note where the downloaded file is saved.)
4. Locate the downloaded file on your computer. Use a program such as WinZip or StuffIt to extract the compressed file.
5. Double-click the NarrativeTemplate.mxp file to automatically instal the template in Macromedia Flash 8.

The pre-built sample narrative "Why Do Leaves Change Colour?" (the SWF movie and FLA source files) and the sound assets (pre-recorded sound clips that accompany the narrative) are both available for download. You can use them for preview, reference or for building the sample narrative. The files are available as ZIP files.

Sample Project Multimedia Assets

To download and use the compressed ZIP files:

1. Go to *www.macromedia.com/go/digitalnarrative8_uk/*.
2. Scroll down to the Sample Narrative and Sample Sounds sections and click ZIP file.
3. Select the saving location for the files on your computer. (Be sure to note where the downloaded files are saved.)
4. Locate the downloaded files on your computer.
5. Use a program such as WinZip or StuffIt to extract the compressed files; ensure that the program is set to keep the folder structure intact.

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Teacher Materials

Teacher planning materials are available for download. These materials will help structure the lessons, regardless of whether you are building a new narrative or building the sample narrative "Why Do Leaves Change Colour?"

To download the materials:

1. Go to *www.macromedia.com/go/digitalnarrative8_uk/*.
2. Scroll down to the Teacher Materials section and click the PDF file.
3. Select the saving location for the file on your computer. (Be sure to note where the downloaded file is saved.)

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Lesson 1

Planning the Narrative

Approximate completion time: 30 minutes or more, depending on the scope of the project

In this lesson, you select a topic for a digital narrative, do research on your topic and write a narration script for the narrative. You then create a storyboard to show how you will lay out and animate the content of each page in your narrative. (You may want to create the storyboard before you write the narration script or alternate between working on the script and the storyboard.)

In this project, the term *page* refers to the separate screens of the narrative.

Researching the Topic

Planning and organising your narrative carefully from the start can save you time later. The first step is to research your topic. Your research might include:

- Books
- Magazines
- Internet
- Interviews with subject experts

You might also find it helpful to view existing online narratives to see different types of engaging and interactive examples. The following sites contain narratives:

- Arizona State University and the Institute of Human Origins documentary: *www.becominghuman.org*
- Second Story's site contains interactive features on subjects ranging from the visual arts, architecture, and music to history, geography, and the sciences: *www.secondstory.com*
- Youth Radio's website has examples of using Flash to animate commentaries on various subjects with varying degrees of seriousness: *www.youthradio.org/animation/index.shtml*
- Hillman Curtis' site includes a collection of animated presentations: *www.hillmancurtis.com/site2/webmotion02.html*
- Wildbrain's site contains cartoons, commercials, and TV shows: *www.wildbrain.com*

Writing the Script

After researching the topic, write the narration script for your narrative. You will record the script and use the recorded audio files in your narrative. Here are some suggestions that you might find helpful when writing your script:

- Format your script in two columns, displaying the spoken narration on the right and a brief description of each page on the left.
- Indicate clearly where each page begins and ends.
- Use a conversational tone, but maintain correct grammar.
- Read your script aloud to gauge timing accurately and to avoid problems that are not obvious on the printed page. Better yet, have someone else read it to you.
- Avoid awkward combinations such as "fresh step" and "safe and effective" (which can sound like "safe and defective").

- Use ALL CAPITAL LETTERS to indicate words that you should emphasise when you're recording the script.
- Write exactly what you want to hear. Do not use abbreviations, currency symbols, slashes, or other symbols.
- When writing the script, think about the way you to intend to support the narrative with text and graphics.
- Keep your narration short and to the point. This makes the narrative clear and can also reduce the size of your finished narrative file. A good rule is to use no more than three key ideas per page.

After writing your script, plan the design of your narrative by creating a storyboard for each page.

Creating a Storyboard

For a film, television show, or television commercial, designers use the term *storyboard* to refer to a panel or series of panels on which sketches depict important changes of scene and action. Here, *storyboard* refers to sketches of all the pages in your narrative. On each storyboard page, block out areas to show the placement of elements such as the title, images, text, and navigation controls. Your storyboard pages should also describe any animation or sound.

To create a storyboard for the narrative:

1. On a sheet of paper, draw boxes as placeholders for the elements of your page. For example, the title page of the sample "Why Do Leaves Change Colour?" narrative has the following layout:

   - *Title of the page:* Draw a rectangle, centred on the page.
   - *Image:* Draw a square in the top left-hand corner of the page.
   - *Navigation controls:* Draw a rectangle in the bottom right-hand corner of the page. Add a small rectangle to represent the print icon in the top right-hand corner.

   These are the main elements of the title page used in this project. If you intend to add other elements, be sure to include them on your storyboard.

2. Below the page sketch, describe the graphic objects, background, and any animations. Indicate the name of the sound file, if any.

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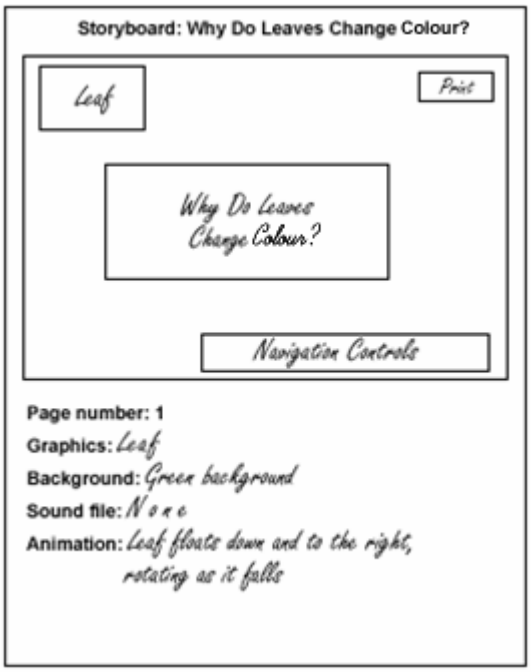
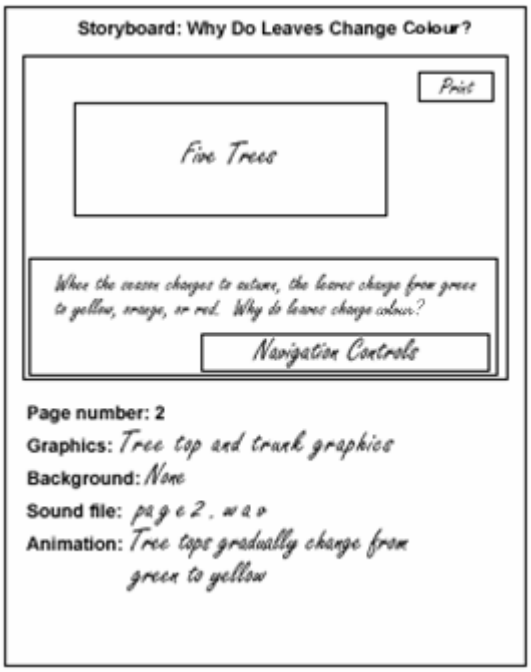
Storyboard pages for the first two pages of the sample narrative “Why Do Leaves Change Colour?” follow.




Storyboard: Why Do Leaves Change Colour?
Print
Five Trees
When the season changes to autumn, the leaves change from green to yellow, orange, or red. Why do leaves change colour?
Navigation Controls
Page number: 2
Graphics: Tree top and trunk graphics
Background: None
Sound file: page2.wav
Animation: Tree tops gradually change from green to yellow

Planning the Other Pages

Think about the way you want to organise the content you have for the other pages. Are there paragraphs of text? graphics? animation? bullet lists? charts? tables? sound?

The other pages of the sample narrative (“Why Do Leaves Change Colour?”) include the following types of information:

- Graphics drawn with the Flash drawing tools
- Paragraphs of text
- Sound files for the recorded narration
- Animation
- Navigation controls
- Print button

Decide on the best way to organise your content. Create storyboard pages for the other pages of your narrative on separate sheets of paper.

Recording Audio for the Narrative

Once you have finished the narration script and storyboard, you are ready to record the audio that will narrate your pages. You can record sound to your computer with a microphone and a sound application such as Macromedia SoundEdit 16, or you can first record to another medium such as digital audio tape (DAT) and then transfer the sound to your computer.

After transferring the sound to your computer, use your sound-editing program to edit the files. You should produce a separate sound file for each page. Most sound-editing programs enable you to export your edited files in several standard formats.

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You can import the following sound file formats into Flash:

- WAV (Windows only)
- AIFF (Macintosh only)
- MP3 (Windows or Macintosh)

If you have QuickTime 4 or later installed on your system, you can also import the following sound file formats:

- AIFF (Windows or Macintosh)
- Sound Designer II (Macintosh only)
- Sound Only QuickTime Movies (Windows or Macintosh)
- Sun AU (Windows or Macintosh)
- System 7 Sounds (Macintosh only)
- WAV (Windows or Macintosh)

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Lesson 2

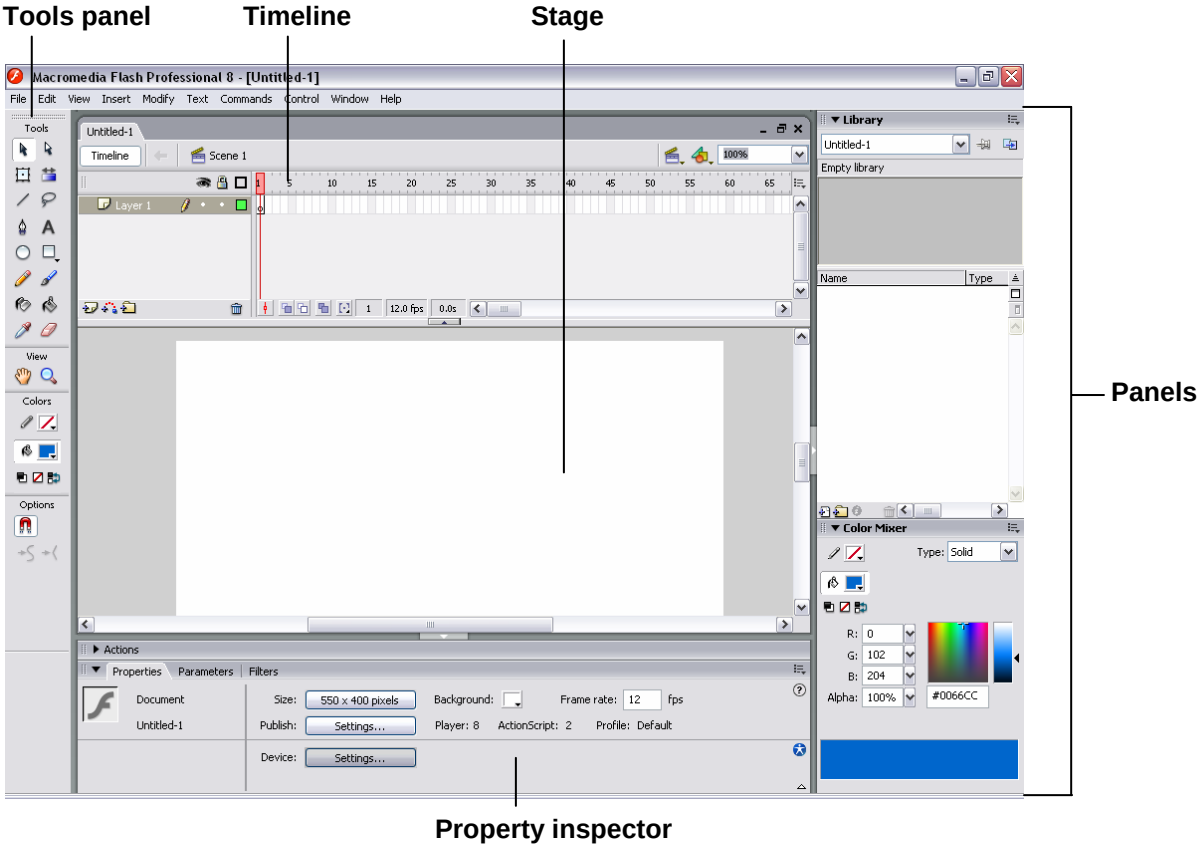
Getting Acquainted with Macromedia Flash 8

Approximate completion time: 30 minutes

This lesson introduces the key parts of Flash. If you are already familiar with Flash, you can skip ahead to Lesson 3: Building a Narrative from a Template.

Although Flash is best known as an animation program, it also provides powerful tools for creating interactive websites and multimedia presentations.

The main components of the Flash interface are the Timeline, Stage, workspace, layers, Tools panel, Property inspector, and panels.



- The *Timeline* is where you control the elements of your movie over time.
- The *Stage* is where your text, images, and animations appear. The white area of the Stage is the visible area of your project. You can modify the properties of the Stage, such as size, colour, and frame rate.
- The *workspace* is the grey space surrounding the Stage. Nothing in the workspace is visible when you publish your finished movie. However, you can place objects here until you want them to appear on the Stage.
- The *Tools panel* contains tools for creating and editing artwork.
- The *Property inspector* enables you to see and change the properties of objects on the Stage.
- On the right side of the Flash workspace are *panels* which you can collapse or expand as you need them. For example, there are panels for working with colour, components, and behaviours.

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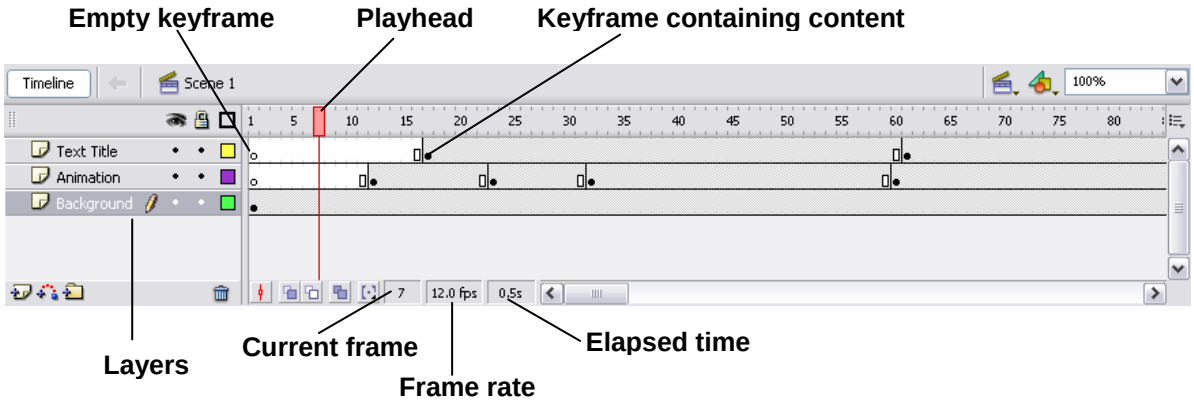
The Timeline

The Timeline is a key organisational and navigational tool for your animations. Here, graphics are animated over time. You co-ordinate the timing of the animation and assemble the artwork on separate layers on the Timeline. The Timeline displays each frame in the movie. Your movies can contain frames, keyframes, and empty/blank keyframes.



- *Layers* are a way of organising the objects on the Stage, much like a stack of transparent sheets for an overhead projector. You must use separate layers to draw overlapping shapes. Each layer has controls that enable you to hide or show the layer, lock it (so that you can't move its contents accidentally), and display its contents as outlines.
- *Frames* are like the individual frames of a filmstrip. The Timeline in a new Flash project appears to have many frames, but these are actually empty slots, which you can define as frames or keyframes.
- A *keyframe* contains content, indicated by a solid circle in the frame. A keyframe usually indicates that a change is going to occur on the Stage.
- An *empty keyframe*, or blank keyframe, has no visual content on the Stage. The Timeline opens with one empty keyframe when you start a new project.
- The *playhead* indicates which frame of the Timeline is currently being shown on the Stage. You can click and drag the playhead to move it to view a specific frame, or scan through the Timeline (scrubbing).
- The *current frame* is the frame on which the playhead is positioned.
- *Frame rate* is the number of frames that will play each second when your movie is viewed.
- *Elapsed time* is the amount of time it will take for your movie to play from the first frame to the currently selected frame. You select a frame by clicking it.

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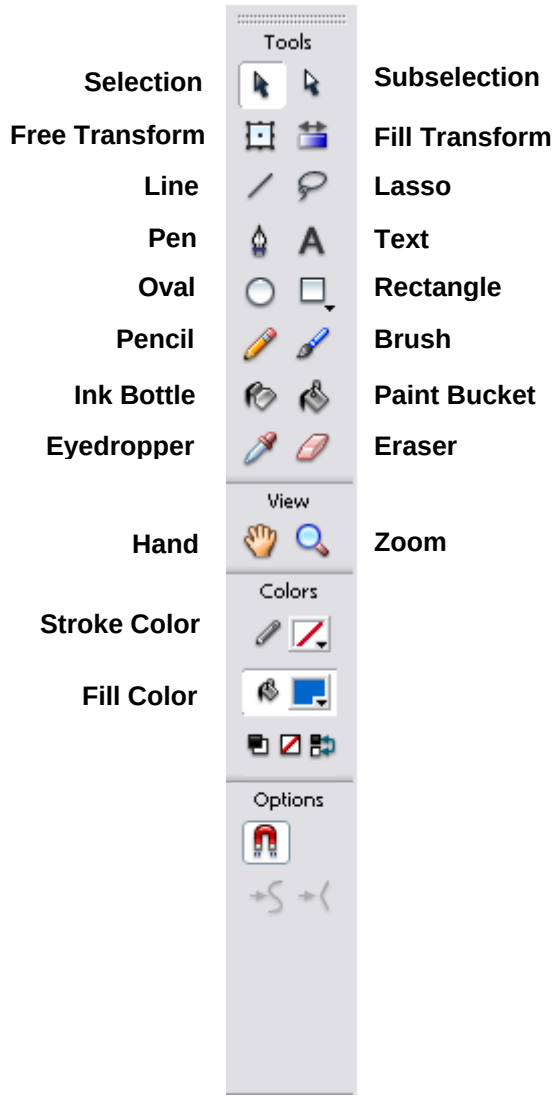
The Tools Panel

The Flash Tools panel contains tools for drawing shapes, adding text, modifying objects, and controlling colour. The Options section displays any other options for modifying the selected tool. When you select a tool, the Property inspector changes to present the settings associated with that tool. For example, if you select the Text tool the Property inspector displays text properties, so that you can select the text attributes you want easily.



The following is a list of the tools that are used to create the sample narrative "Why Do Leaves Change Colour?" To learn more about the other tools, select Help > Using Flash.

- Use the *Selection* tool to select entire objects by clicking or by dragging and enclosing the object within a rectangular selection box. To select connected lines or both the fill and stroke of a drawn shape, double-click with the Selection tool.
- Use the *Text* tool to add, select, and edit text.
- To draw basic geometric shapes, use the *Line*, *Oval*, and *Rectangle* tools.
- Use the *Pencil* tool to draw free-form lines and shapes as if drawing with a real pencil.
- Use the *Pen* tool to draw precise paths as straight or curved lines.
- Use the *Brush* tool to create brush-like strokes as if painting with a brush.

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- The *Free Transform* tool is used to transform graphic objects as well as groups, text blocks, and instances of symbols. Depending on the type of element you select, you can transform, rotate, skew, scale, or distort the element as you wish.
- The *Paint Bucket* tool fills enclosed areas with colour. It can fill empty areas and change the colour of areas which have already been painted.

Understanding Text, Shapes, and Symbols

You can add three main types of objects to your Flash movies. These are *text*, *shapes*, and *symbols*.

- Use the Text tool to add *text*.
- Create *shapes* with the drawing tools in the Tools panel.
- *Symbols* are reusable graphic objects which are stored in the library for the current project. Once a symbol is stored in the library, you can place copies, or *instances*, of the symbol in your movie. After you add an instance of a symbol to your movie, you can change its properties, such as size or tint. You can add any number of instances of a symbol to your movie without increasing the size of the movie file. If you edit the original symbol in the library, all instances are updated automatically.

Adding Text

Adding text is easy when you use the Text tool. First, drag to create a text box and type your text. Use the Property inspector to apply text attributes such as font, size, and colour. You can apply text attributes before or after you type your text.

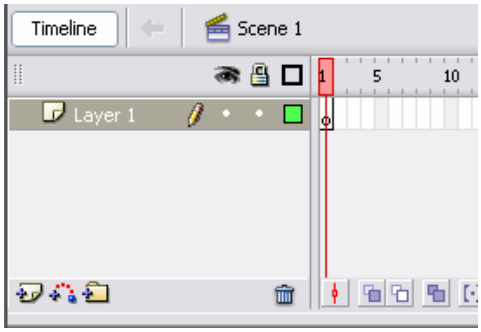
To add text:

1. Start Macromedia Flash 8.

   A Start Page opens.

2. To open a new Flash document, select **Flash Document** in the Create New column.

   Every new document opens with one layer and one empty keyframe.



3. Double-click **Layer 1** on the Timeline, type *text*, and press **Enter** (Windows) or **Return** (Macintosh) to rename the layer.

   Naming layers helps to keep the Timeline organised.

4. Click the **Text** tool in the Tools panel to select it.
5. Move the pointer to the Stage.
6. The pointer changes to a plus symbol with an upper-case letter *A*.

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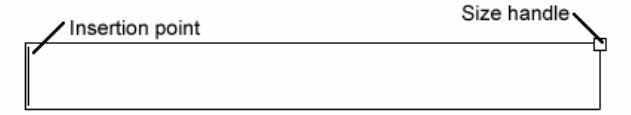
7. Draw a text box by dragging the pointer on the Stage.



The text box contains a flashing insertion point. This is where text will appear when you type. You can adjust the width of the text box by dragging the size handle. You can use the Property inspector to apply text attributes.

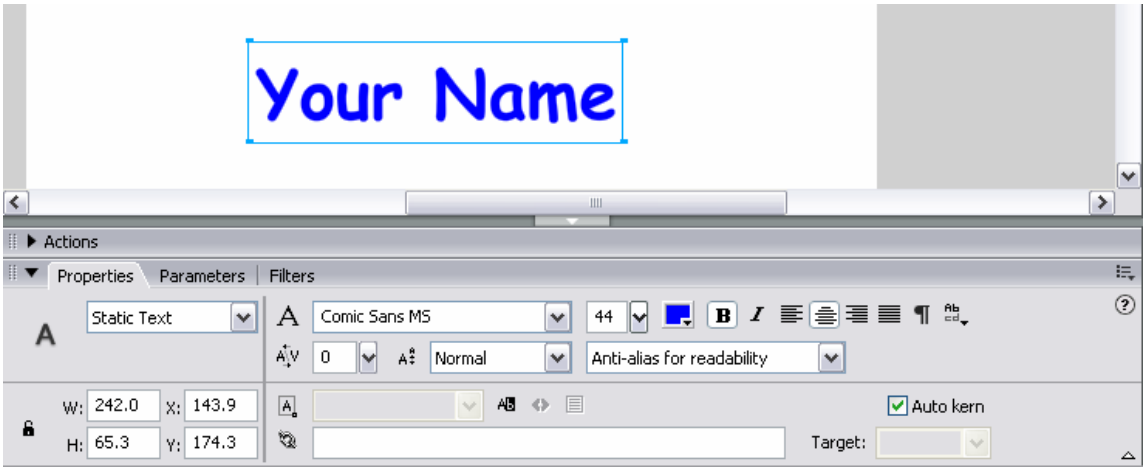
8. Type your name.
9. Click away from the text to deselect it.

To edit text *after* it has been created, double-click the text and make your changes. To set text properties, select the text box with the Selection tool.

10. Use the Selection tool to select the text.

The text is surrounded by a thin blue outline.

11. Use the Property inspector to apply new text attributes.



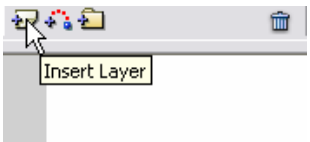
Drawing Basic Shapes

Flash has some very useful drawing tools which you can use to create the artwork for your interactive movies. Although you can import artwork that has been created in other applications, such as Macromedia FreeHand, drawing tools such as the Pen tool place the same precision drawing capabilities right at your fingertips. Even if you are not a professional artist, it is much easier to can create basic shapes than you might think.

To draw basic shapes:

1. Insert a new layer and name it *circle*.

To insert a new layer, click the **Insert Layer** button on the Timeline.



2. Select the **Oval** tool on the Tools panel.

The Colors section displays the colour options for the Oval tool. You can change the stroke colour and fill colour. For this lesson, use different colours for stroke and fill.

3. Drag on the Stage to draw a small circle.

   You can make a perfect circle by holding the Shift key down as you draw.

4. Use the Selection tool to click the centre of the circle.

   Only the fill (inside) of the circle is selected, not the stroke (outline).

5. Double-click the circle.

   Double-clicking the fill of a shape selects both the fill and the stroke.

6. Click away from the circle to deselect it.

7. Click the stroke of the circle to select it.

8. Press **Delete** or **Backspace** to remove the stroke.

Using Symbols and the Library

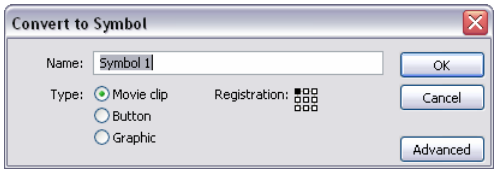
In addition to text and shapes, your movies can include symbols. You can create new symbols or convert existing objects such as text or shapes. One advantage of working with symbols is that it is easy to change attributes such as brightness, tint, and alpha transparency (the opacity of the object). Symbols are stored in the library for the current document. To use a symbol in your movie, drag an instance of the symbol from the library onto the Stage.

To convert a shape to a symbol:

1. Use the Selection tool to select the circle shape.

2. Select **Modify** > **Convert to Symbol** on the menu bar.

   The Convert to Symbol dialogue box opens.



3. Name the symbol *circle graphic*, select **Graphic** as the Type, and click **OK**.

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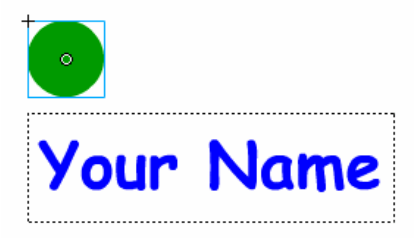
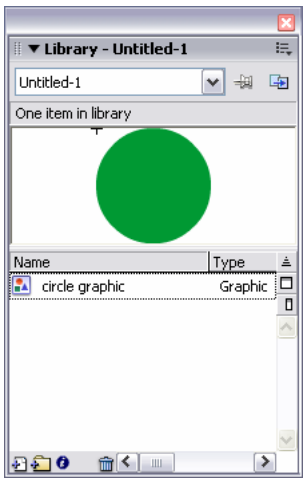
You can tell by the blue outline and small circle in the middle of the circle that it is now a symbol, not a shape. The Property inspector shows that it is an *instance* of the circle graphic symbol. The actual symbol is stored in the library.



To add symbol instances using the Library panel:

1. Make sure the Library panel is open (**Window > Library**).

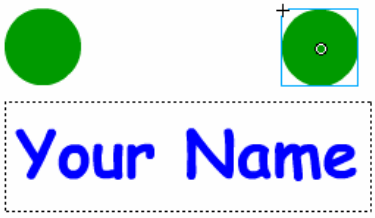
   The Library panel contains the circle graphic symbol. The icon beside the symbol represents the graphic symbol type.



2. Drag the **circle graphic** from the Library panel to the Stage.

   A second instance of the circle graphic is added to the Stage.

   You can select the instance by single-clicking the object on the Stage to change the size and colour attributes without affecting the original symbol. On the other hand, if you double-click the object on the Stage, you enter symbol-editing mode, and the changes you make apply to every instance of the symbol.



Animating with Motion Tweens

Much of the animation you see on television or the web is created using a process called *keyframe animation*. The main artist draws a keyframe for the beginning of the animation and a keyframe for the end of the animation. Then, a person called the “in between” artist draws all the frames that go between the two keyframes to create the effect of motion. This is called “tweening” for short.

In Flash, you create the beginning and end keyframes and let Flash fill in the blanks to create the animation. To animate text or symbols, use a motion tween.

To animate text:

1. Click frame **13** on the text layer and select **Insert** > **Timeline** > **Keyframe** on the menu bar.

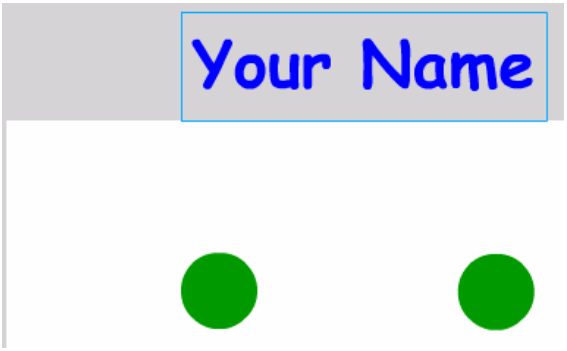
   The animation will begin in frame 2 and end in frame 13, lasting 12 frames. Because this movie is set to play at 12.0 fps (12 frames per second), the animation will last 1 second.

2. Click frame **1** on the text layer.

   The text in frame 1 is selected.

3. Select the text with the Selection tool and drag the text in frame 1 off the Stage to the workspace.

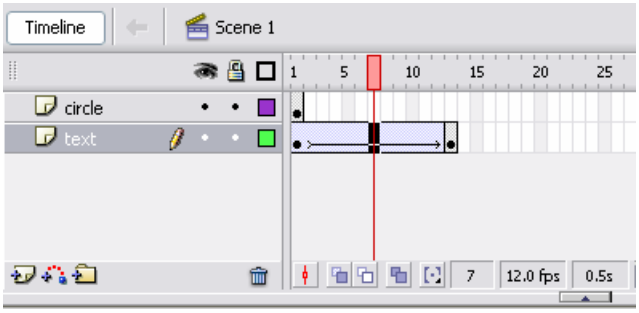
   The text will begin offstage and then animate into view.



4. Click anywhere between frames **1** and **13** on the text layer.

5. Select **Insert** > **Timeline** > **Create Motion Tween** on the menu bar.

   You can also add a motion tween by selecting Motion in the Tween menu on the Property inspector. The motion tween is represented on the Timeline by light blue shading and an arrow between the two keyframes.



6. Position the playhead in frame **1** and press **Enter** (Windows) or **Return** (Macintosh) to preview the movie.

   The text animates into view, but the circles disappear after frame 1 of the movie. You can adjust this by adding frames to the circle layer.

7. Click in frame **13** on the circle layer.

8. Select **Insert** > **Timeline** > **Frame** on the menu bar.

9. Position the playhead in frame **1** and press **Enter** (Windows) or **Return** (Macintosh) to preview the movie.

To animate symbols:

A motion tween will not occur on layers with ungrouped shapes or on those with more than one group or symbol. To animate additional text, shapes, or symbols, add new layers.

1. Insert a new layer and name it *blue circle*.

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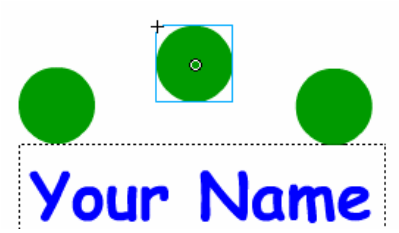
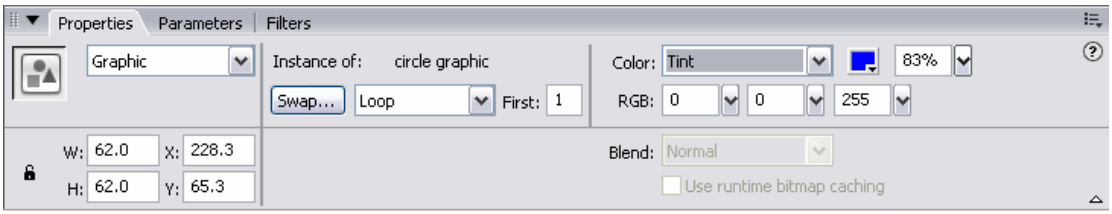
2. Drag another instance of the **circle graphic** symbol from the Library panel to the Stage.



3. Click frame **13** on the blue circle layer.
4. Select **Insert** > **Timeline** > **Keyframe** on the menu bar.
5. Click the circle in frame 13 to select it (the one you just added to the blue circle layer).
6. Use the Property inspector to change the tint of the circle.



7. Click between frames **1** and **13** on the blue circle layer.
8. Select **Insert** > **Timeline** > **Create Motion Tween** on the menu bar.
9. Position the playhead in frame **1** and press **Enter** (Windows) or **Return** (Macintosh) to preview the movie.

   The text animates into view, and one of the three circles slowly changes from green to blue.
10. Save and close the document.

Lesson 3

Building a Narrative from a Template

Approximate completion time: 10 minutes

Flash provides templates that take the heavy programming out of the development process and leave you with more time to focus on design and content.

For example, you can create a digital narrative using the Narrative template that is provided with this course.

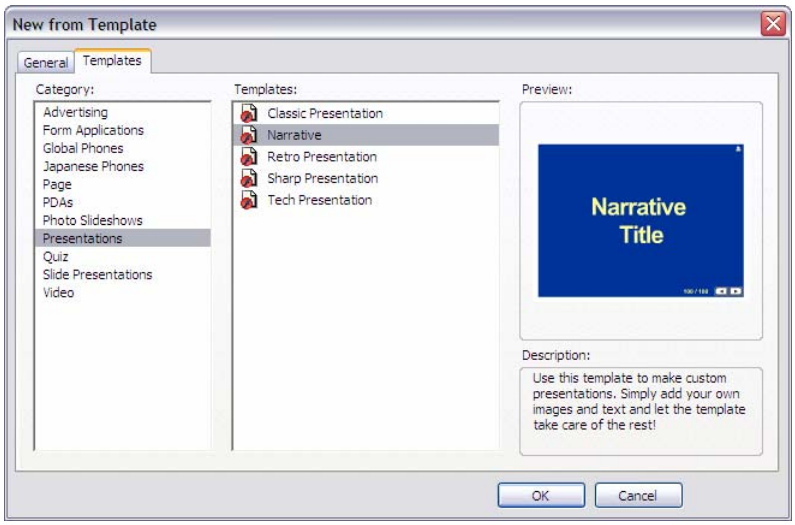
Creating a New Movie from a Template

To start your narrative, use the Narrative template to begin a new project, and add your own content. You can also customise the template to include design ideas of your own.

To create a new movie from a template:

1. Start Macromedia Flash 8.
2. Select **File > New** on the menu bar.

   The New Document dialogue box opens.
3. Select the **Templates** tab.
4. Select **Presentations** from the Category list.



5. Select **Narrative** from the Templates list, and click **OK**.

   A new project file opens.

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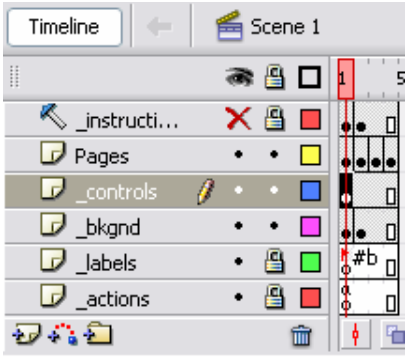
Identifying the Parts of the Template

The Narrative template provides several elements that will simplify the process of building your narrative. For example, every page includes a background layer, a print button, and navigation controls.

To identify the parts of the template:

Drag the bottom edge of the Timeline down until all six layers are visible.



The following is a brief description of each layer in the Narrative template:

- The *_instructions* layer is a Guide layer and will not appear in the finished narrative. This layer contains instructions on using the template. You can hide this layer or delete it.
- The *Pages* layer contains four keyframes. Each keyframe represents a new page. The first page is a placeholder for the title. You can easily modify the contents of these pages to begin your narrative. To add new pages, simply add keyframes.
- The *_controls* layer provides the navigation controls for your narrative. These include Next Page and Previous Page buttons as well as dynamic text fields that display the current page number and the total number of pages. This layer also includes a print button. You can safely delete the print button if you wish.
- The *_bkgnd* layer contains keyframes for the background images. The Narrative template has a keyframe for the title page background and a blank keyframe which you can use to add a background for the other pages in the narrative. The background for the title page is a plain blue rectangle. You can use this background as is, change its colour, or replace it with something else.
- The *_labels* layer contains a named layer which defines the area of the page that is printed when the viewer clicks the Print icon.
- The *_actions* layer contains ActionScript—the scripting language of Flash—which tells the movie to stop on each page. The movie will not go to the next or previous page until the viewer clicks one of the navigation controls.

Adjusting Movie Properties

The template is supplied with several predefined movie (document) properties. These include the size of the Stage, the background colour, and the number of frames per second.

To adjust movie properties:

1. Select **Modify** > **Document** on the menu bar.

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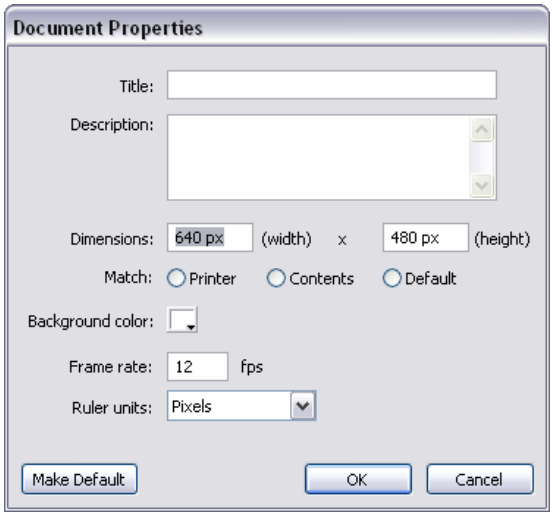
The Document Properties dialogue box opens. From here you can change the document title, the size of the Stage, the background colour, and the frame rate.



If you are creating the narrative "Why Do Leaves Change Colour?" for this project, leave the document settings as they are.

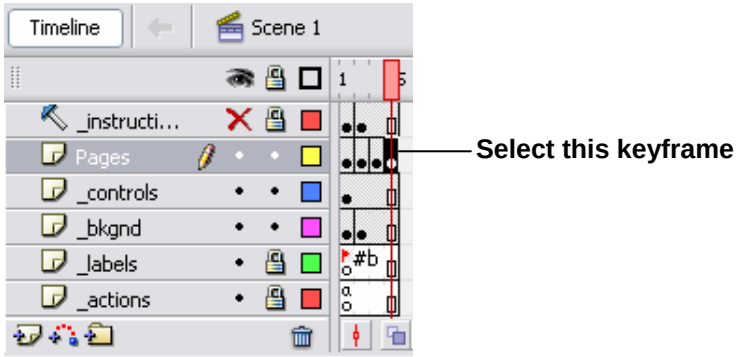
2. To save your changes and close the Document Properties dialogue box, click **OK**.

Adding Pages to Your Narrative

The Narrative template includes one title page and three blank pages. The template is designed so you can add any number of pages. If you add new pages to your narrative, make sure that you extend the other layers so that they contain the same number of frames as the Pages layer.

To add new pages to the narrative:

1. Select the keyframe for page 4 on the Pages layer.



2. Select **Insert > Timeline > Keyframe** on the menu bar.

   A new page is added. It contains the same content as the previous page. You can continue to add and modify any number of pages.

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Testing the Movie

You can test your movie at any time as you work on it. It is important to understand that your Flash document is where you create and edit your movie. This file has a .fla file extension. When you publish or test your movie, Flash creates a movie which can be played in a web browser. This stand-alone movie has a .swf file extension. When you test your movie, Flash places a new SWF file with the same name in the same directory as the document file. It's a good idea to save your document before you test it.

To test the movie:

1. Select **File > Save** on the menu bar to open the Save As dialogue box.
2. Navigate to a folder on your computer in which you plan to save the movie.
3. Type a name for the document, and click **Save**.
4. Select **Control > Test Movie**.

   Flash creates the SWF file and shows the first page of the narrative.
5. Use the navigation controls to view the other pages in the narrative.

   Before you create content in the template, pages 2–4 are blank. You will use these pages to create your narrative.

   You can also use the Left Arrow and Right Arrow keys to move from page to page.
6. Select **File > Close** to close the movie and return to the project file.
7. Save the document.

Lesson 4

Building a Title Page

Approximate completion time: 40 minutes

As with most narratives, the first page of your narrative will be the title. Your title page may include anything from simple text to complex animations. You can add interest to your title page by adding colour, modifying the background image, or adding graphics and animation.

In this lesson, you build your title page by replacing the temporary text, editing the background, creating a graphic symbol, and creating a movie symbol.

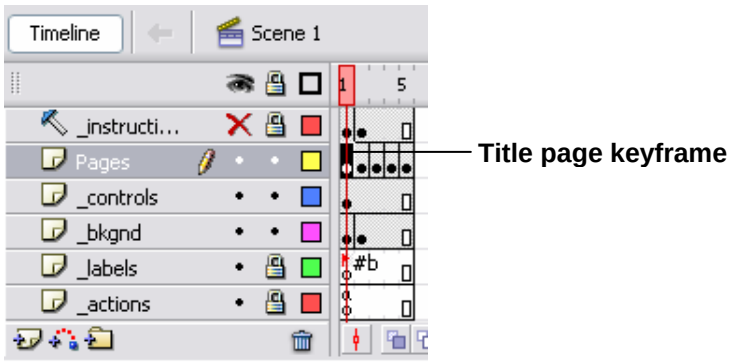
Use the storyboard you created in Lesson 1 as a guide for creating your title page.

Entering the Title of Your Narrative

To begin the title page, edit the contents of the first keyframe on the Pages layer. You can use the existing text properties or customise the title on the Property inspector.

To enter the title of your narrative:

1. Open your narrative document.
2. Select the first keyframe on the Pages layer.



   This frame contains the temporary text for page 1, the title page.
3. With the Selection tool, click the text to view its properties on the Property inspector.
4. Change the text colour to a light colour, such as white (#FFFFFF), which will contrast with the background.
5. Using the Text tool, drag to select the temporary text, **Narrative Title**.
6. Type the title of your narrative.

   If your title is too long to fit on one line, click the location at which you want to start a new line and then press Enter (Windows) or Return (Macintosh). You can also drag the size handle in the upper right corner to adjust the width of the text box. (This handle appears only when you are using the Text tool.)
7. Click away from the text to deselect it.

Changing the Background

The background for your pages can be as simple as a solid colour. Create the background using the Flash drawing tools, or import other artwork such as drawings or photographs. The Narrative template has a blue rectangle for the background of the title page. The remaining pages have no background.

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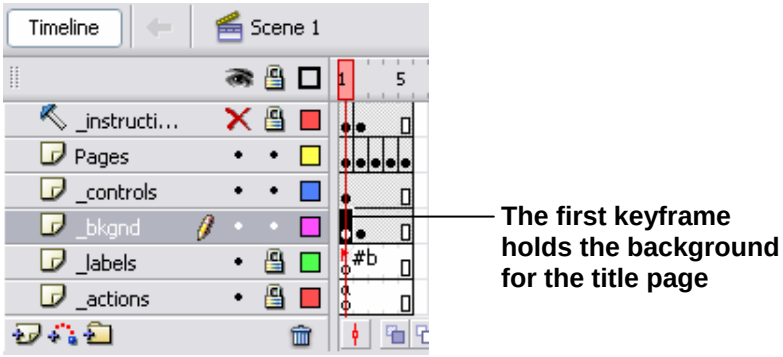
To change the background:

1. Select frame **1** on the _bkgnd layer.



2. With the Selection tool, click the blue rectangle on the Stage to view its properties on the Property inspector.
3. Change the fill and stroke colours in the background.

   If you are creating the "Why Do Leaves Change Colour?" narrative, change the fill and stroke colours to dark green (#006600).

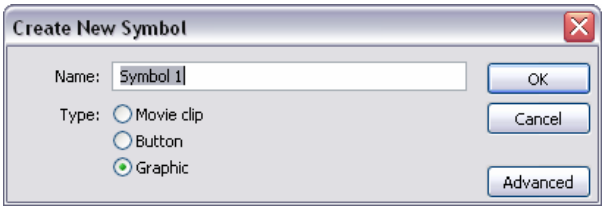
Creating a Graphic Symbol

Even if you have little artistic ability, a number of tools are provided in the Tools panel for creating realistic drawings.

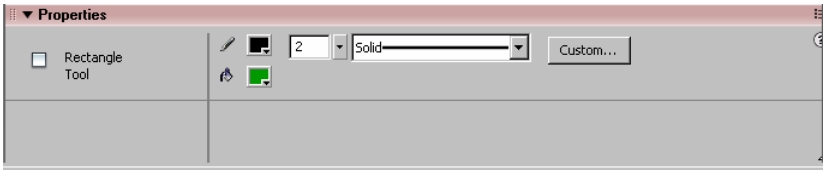
To create a graphic symbol:

1. Select **Insert** > **New Symbol**.

   The Create New Symbol dialogue box opens.

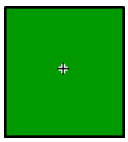


2. Name the symbol *leaf* (or give it a different name if you want to draw a different object). Select **Graphic** as the Type, and click **OK**.
3. If you are creating the leaf for the "Why Do Leaves Change Colour?" narrative, select the **Rectangle** tool, or select another shape to help you draw the object shown on your storyboard.
4. On the Property inspector, select green (#009900) as the fill colour and black as the stroke colour for the leaf. Make the stroke height **2** and the stroke style **Solid**. (If you are not drawing the leaf, select appropriate stroke and fill colours for your shape.)



   Be sure to use a shade that is lighter than the title page background colour.
5. Draw a small rectangle or other shape you have chosen.

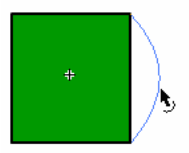
You will use the Selection tool to modify the basic shape so that it looks more realistic. This is a simple technique for creating a drawing.



6. With the Selection tool, position the pointer over the right edge of the rectangle until you see a small curve attached to the pointer.

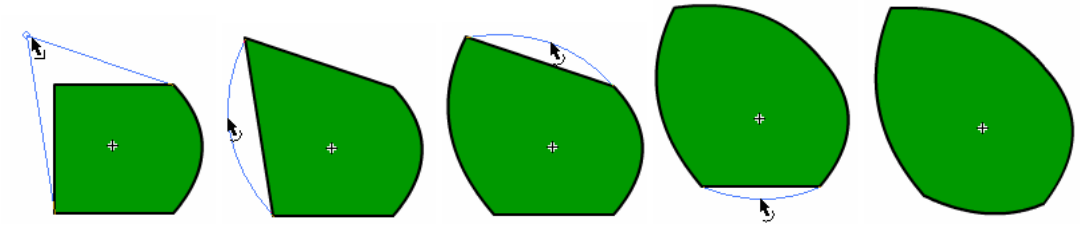
   The curve attached to the pointer indicates that you are over a line, not a fill.

7. Drag the edge of the rectangle to the right.

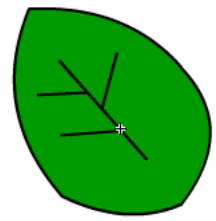


   The shape is distorted and stretched as you drag. You can turn very basic shapes into creative drawings with this simple method.

8. Drag the edges and the corners of the rectangle until it resembles a leaf. To move a corner of the rectangle, position the pointer over the corner and drag when you see a small corner attached to the pointer.



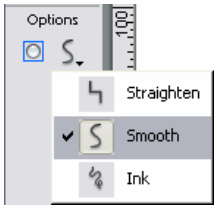
9. Draw segments with the Line tool to make veins inside the leaf.



10. Select the **Pencil** tool in the Tools panel.

    The Options section of the Tools panel includes modifiers for the Pencil tool.

11. Select the **Smooth** modifier.



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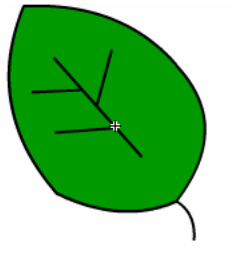
12. Draw the stem of the leaf.



To keep the parts of the leaf together, you can group them.

13. Select **Edit > Select All**.
14. Select **Modify > Group**.
15. Remember to save your document frequently.

To check the size of a graphic symbol:

1. Click **Scene 1** to return to the main Timeline.

2. Ensure the Library panel is open (**Window > Library**).

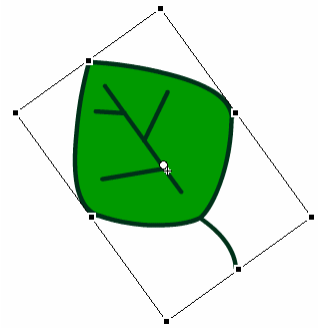
   The graphic symbol you created is stored in the library.

3. Drag an instance of the **leaf** symbol (or your graphic) from the library to the Stage.

   If you change the size of the graphic on the main Stage, you only change the size of this instance, not of the symbol. You have to open the symbol in order to modify it.

4. Double-click the symbol on the Library panel to open it.
5. With the Selection tool, select the symbol.
6. Select **Modify > Transform > Scale**.

   The symbol is surrounded by a rectangle with handles.



7. Position the pointer over any of the handles.
8. The pointer changes to a double-headed arrow that indicates the directions in which the handle will scale the symbol.
9. Click and drag the handle to make the symbol larger or smaller. Drag the handles until the symbol is the size you want.
10. Click **Scene 1** to see how the new size appears on the main Stage. Continue to scale the graphic until you have the size you want.
11. Use the Selection tool to select the instance of the symbol on the main Stage. Then press **Delete** or **Backspace** to delete the instance.

You will add your symbol to a movie clip and add the entire movie clip symbol to the title page instead.

Creating a Movie Clip Symbol

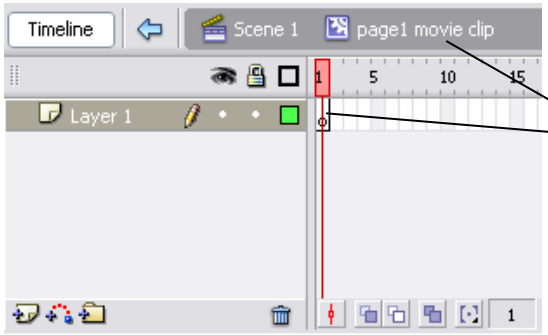
Movie clip symbols can contain multiple layers, graphics, buttons, animation, sounds, and ActionScript. Movie clips are mini-movies which you place inside the main Flash movie. A movie clip is a symbol with its own Timeline and properties (such as colour, transparency, and rotation) which let it run independently of the main Timeline. Once you have created a movie clip symbol, you can add an instance of it to any frame on the main Timeline. The movie clip will play even when the main Timeline is stopped.

The main Timeline of the Narrative template has one keyframe for each page. To add animation to your pages without extending the Timeline or adding new layers, create a separate movie clip symbol for the animation and the sound elements you plan to add to each page, and add that symbol to a single frame on the main Timeline.

To create a movie clip symbol:

1. Select **Insert > New Symbol** on the menu bar.
2. Name the symbol *page1 movie clip*, select **Movie clip** as the Type, and click **OK**.

   A separate Timeline and Stage open for the movie clip symbol. The Timeline contains one layer and one empty keyframe. You will use this new Timeline and Stage to create an entire movie and then place it on the title page of your narrative.



The Timeline for the movie clip symbol

   Note: The Timeline and Stage with your title page have not been lost. You will be able to return to them when you have completed your work on the new symbol.

3. Double-click the layer name **Layer 1** on the Timeline and type a descriptive layer name, such as *animation*.

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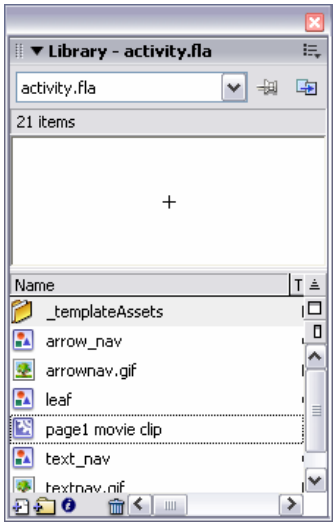
4. If the Library panel is not open, select **Window > Library** on the menu bar.

   The *page1 movie clip* symbol is stored in the library for this project file. The icon beside the symbol name (in the library and above the Timeline) indicates that it is a movie clip.



5. Create your initial animation in the page1 movie clip.

   Check your storyboard for the description of the animation you want to use on the title page. The leaf executes a two-stage animation if you are creating the leaf animation for "Why Do Leaves Change Colour?" It starts in the top left portion of the Stage, moves down and to the right while rotating clockwise, and then moves farther down and back to the left while rotating counter-clockwise.

6. Drag an instance of the **leaf** symbol from the library to the Stage.

7. Insert keyframes at frames **25** and **49**.

8. Click the first keyframe (frame **1**) and use the Selection tool to place the first instance of the object symbol at the point where you want the object to begin the animation.

   The positioning doesn't have to be exact. You can adjust the position of the movie clip when you place it on the main Timeline.

9. Click the next keyframe and place the object at the point where you want it to move first.

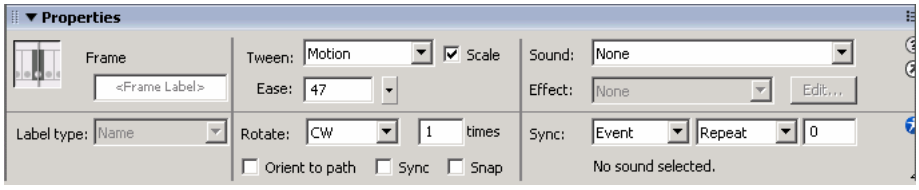
10. Click the last keyframe and place the object at the point where you want it to end the animation.

11. Click between the first and second keyframes.

12. On the Property inspector, select **Motion** on the **Tween** pop-up menu. You can adjust the rotation. If you plan to add a rotation as in the "Why Do Leaves Change Colour?" narrative, select **CW** (for Clockwise) on the **Rotate** pop-up menu on the Property inspector.

13. You can also adjust the Ease settings.

    The terms *easing in* and *easing out* refer to the speed of the animation. Easing out gradually slows the animation to the last frame of the tween (type a positive number in the Ease text box). Easing in gradually speeds up the animation as it reaches the last keyframe (type a negative number in the Ease text box). Experiment with these settings.



14. Apply a motion tween between the second and third keyframes.
15. If you are creating the leaf animation, apply a **CCW** (counter-clockwise) rotation with an Ease In setting of **–28**, or make other changes that you want to create for the second part of the animation.
16. Position the playhead in frame **1** and press **Enter** (Windows) or **Return** (Macintosh) to preview the animation.
17. Select **File** > **Save** to save your changes.

Using Actions to Control a Movie Clip

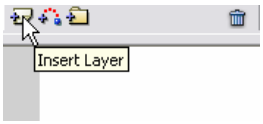
Flash has its own programming language called *ActionScript*. You can use ActionScript to perform advanced programming in Flash, but at the most basic level you can use ActionScript to make buttons and to control your movies. Fortunately, you don't need to be a programmer to apply basic ActionScript. Flash provides several built-in scripts, called *actions*. For example, you can apply an action that tells the movie to stop when it reaches a certain frame or to go to a specific frame when a button is clicked.

When you place a movie clip symbol on the main Timeline, the movie clip continues to loop unless you tell it to stop when it reaches the last frame. You can do this with the *stop* action.

To use actions to control a movie clip:

1. Insert a new layer on the page1 movie clip Timeline and name it *actions*.

   To insert a new layer, click the **Insert Layer** button under the list of layer names.

   It is always a good idea to place actions on a separate layer.
2. Insert a keyframe at frame **49** on the actions layer (or at the frame with the same number as the final frame on the animation layer).
3. Select **Window** > **Actions** to open the Actions panel.
4. Click to expand the **Global Functions** folder and then the **Timeline Control** folder in the Actions toolbox, if they are not already expanded.

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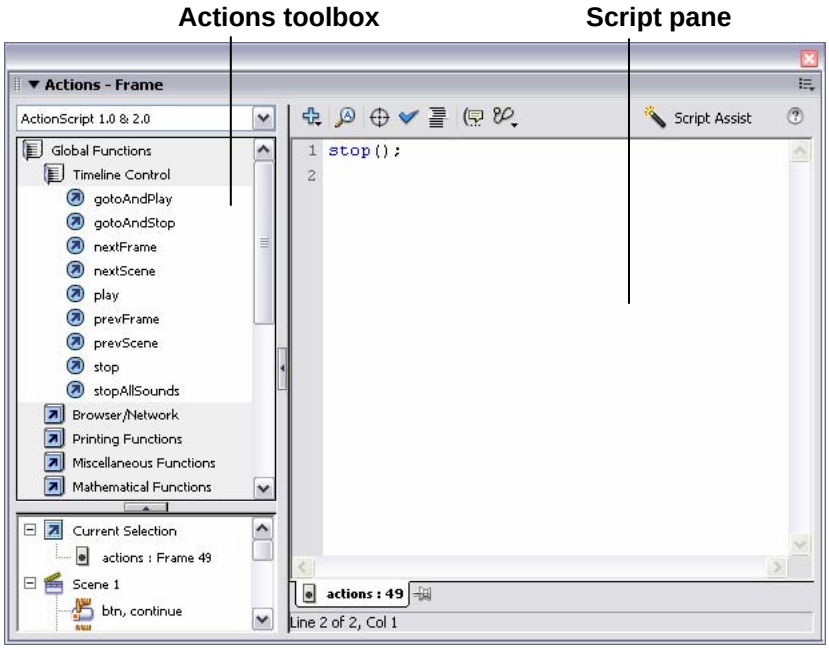
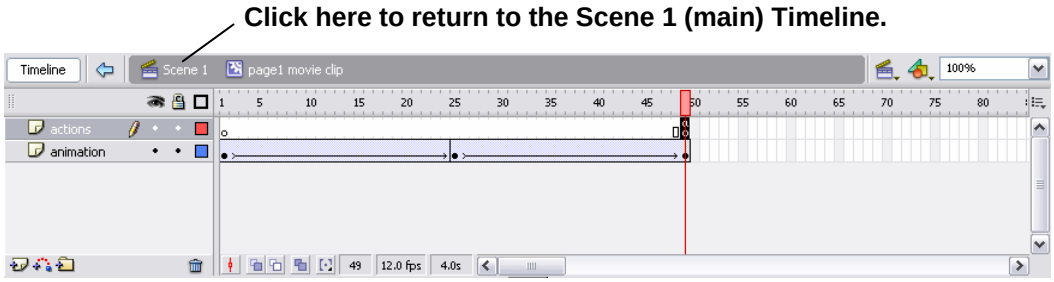
5. Double-click the ***stop*** action to add it to the Script pane.



6. Close the Actions panel.

   The *stop* action is added to the last frame on the actions layer. Actions are represented by a lower-case *a*. When the playhead reaches the last frame, the animation in the page1 movie clip will stop.

7. Click **Scene 1** to return to the main Timeline.



8. Select **File** > **Save** to save your changes.

Adding a Movie Clip to the Main Timeline

Once you have created a movie clip symbol, you can add an instance of the symbol to any frame on the main Timeline. Because the movie clip has its own independent Timeline, it will play even if the main Timeline is stopped.

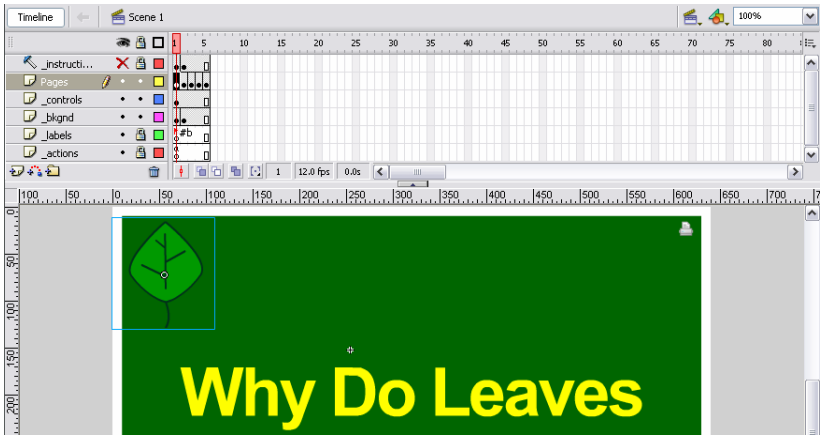
To add a movie clip to the main Timeline:

1. Select the first frame on the Pages layer.

   This is the narrative title page.

2. Make sure the Library panel is open (**Windows** > **Library**).

3. Drag the **page1 movie clip** symbol from the Library panel to the top left-hand corner of the Stage.



To preview a movie clip symbol on the main Timeline, you must test the movie.

4. Select **Control > Test Movie**.

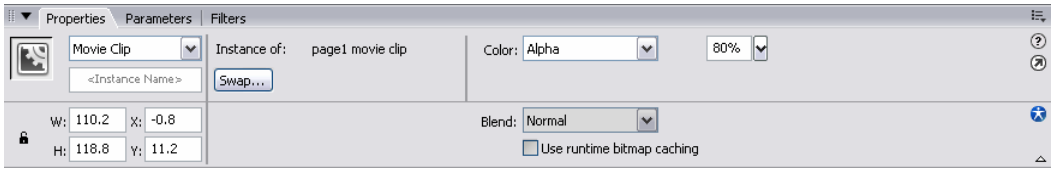
   Flash creates your movie and opens it in a window for you to preview. If you are building the "Why Do Leaves Change Colour?" narrative, the leaf rotates as it falls across the screen. The position of the movie clip might not be perfect, but you can easily adjust this instance of the movie clip.

5. Select **File > Close** to close the movie and return to your narrative document.
6. Double-click the animated object on the Stage to edit the movie clip.
7. Click each keyframe on the animation layer and adjust the position of the object on the Stage.
8. Click **Scene 1** to return to the main Timeline.
9. Select **Control > Test Movie**.
10. Select **File > Close** to close the movie and return to the narrative document.

    Continue adjusting the movie clip until you are satisfied with the position of the animation.

Changing the Alpha Transparency of a Symbol (optional)

1. Click the leaf on the Stage to select the instance of the *page1 movie clip* symbol.
2. Use the Property inspector to apply an alpha transparency of 80%: Select **Alpha** on the Colour pop-up menu. Then change 100% to **80%**.



The leaf will be semi-transparent as it passes over the text.

3. Select **Control > Test** Movie to view the movie.
4. Select **File > Close** to close the movie and return to the narrative document.
5. Save and close your narrative document.

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Lesson 5

Building a Narrative Page

Approximate completion time: 30 to 45 minutes

When you have created the title page for the narrative, you are ready to build the remaining pages. You can add text, shapes, and symbols, such as buttons and movie clips.

During the planning phase of the project, you wrote a narration script and recorded sound.

In this lesson, you build the second page of the narrative by adding text and creating a new movie clip with sound and animation.

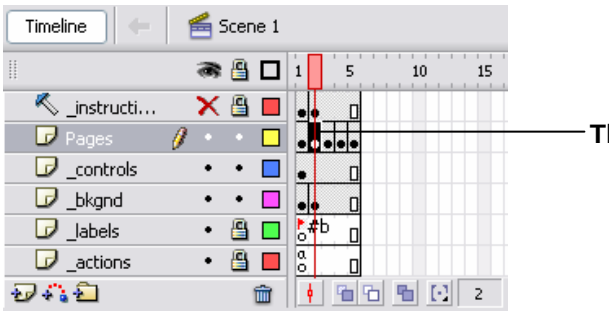
Refer to your storyboard and script for creative direction on the design and layout of page 2.

Typing Narrative Text

Page 2 of the Narrative template includes temporary text which you can modify to begin your page.

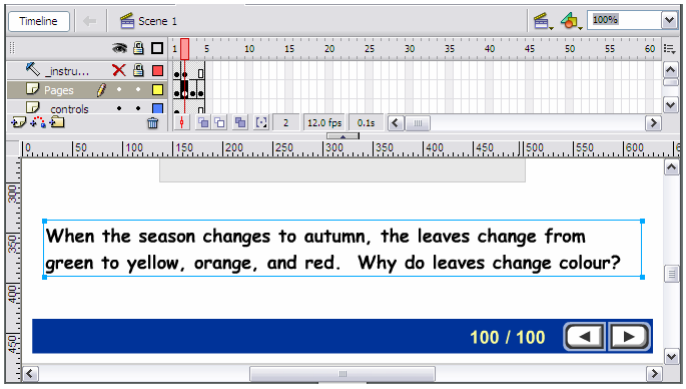
To enter the text of your narrative:

1. Open your narrative document.
2. Select frame **2** on the Pages layer.



3. Select **Type your story here** with the Text tool and press **Delete** or **Backspace** to remove it; then type the text you specified on your storyboard for page 2.

   If you are building the sample narrative, type *When the season changes to autumn, the leaves change from green to yellow, orange, and red. Why do leaves change colour?*


When the season changes to autumn, the leaves change from
green to yellow, orange, and red. Why do leaves change colour?
100 / 100

Building a Movie Clip

The main Timeline of the Narrative template includes one keyframe for each page. To add animation to your pages without extending the Timeline or adding new layers, create a separate movie clip symbol for the animation and sound elements you plan to add to each page, and add that symbol to a single frame on the main Timeline.

To add animation and sound to page 2 of your narrative, you will create a new movie clip symbol which includes the sound you recorded during lesson 1 of this project. You will use the drawing tools to create new graphics, and you will use motion tweens to apply animation.

To open a new movie clip:

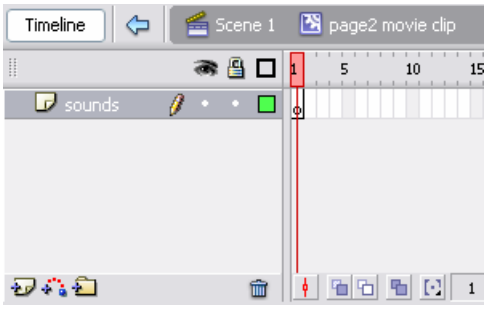
1. Click the **Place your image here** graphic to select it, and then press **Delete** or **Backspace** to remove it.
2. Click **Insert > New Symbol** to open the Create New Symbol dialogue box.
3. Name the symbol *page2 movie clip*, select **Movie clip** as the Type, and click **OK**.

   A separate Timeline opens for the movie clip symbol. You can use this Timeline to create an entire movie and then place it on page 2 of your narrative.

Importing Sound

When you import sounds in Flash, they are added to the library for the current document. Creating a movie clip with sound is similar to editing a music video. First, create a layer named *sounds*, and use the sound in this layer to establish the length and timing of the movie. Then add graphics, animation, and titles to match the message and timing of your sound track.

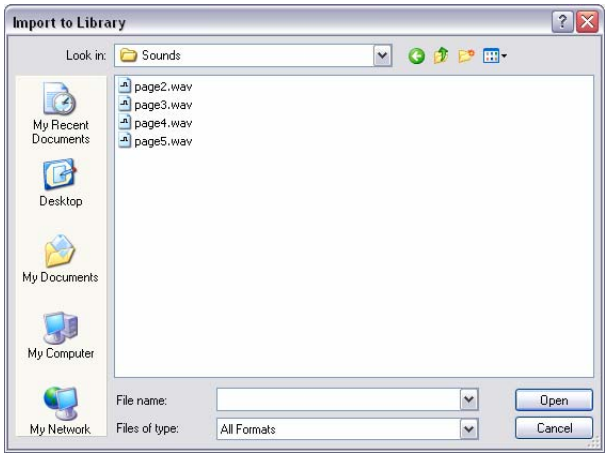
1. Double-click the layer name, **Layer 1**, and change the name to *sounds*.



2. Select **File > Import > Import to Library**.

   The Import dialogue box opens.

3. Locate the sound clips which you recorded during the planning phase of the project.



4. Select the file you want to import, and click **Open**.

   If you are creating the “Why Do Leaves Change Colour?” narrative, import *page2.wav*.

5. Make sure the Library panel is open (**Window > Library**).

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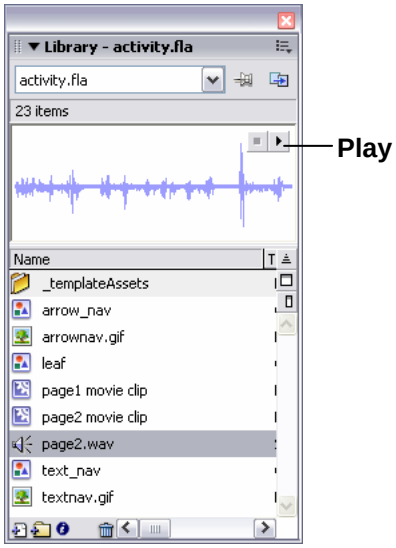
The sound file is added to the library for this document. If you can't remember what a particular sound clip is, you can select it on the Library panel and click the Play button to preview the sound.

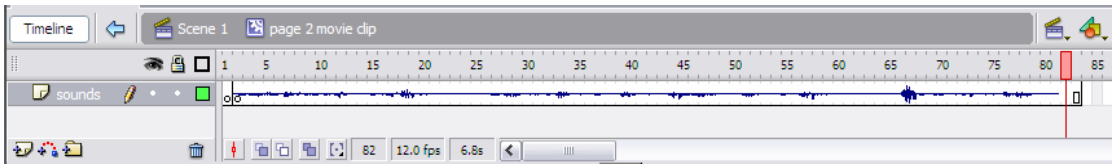


6. Insert a blank keyframe at frame **2** on the sounds layer.

   You will use the first keyframe later, when you add actions to control the movie.

7. With frame **2** selected, drag the **page2.wav** file from the library to any position on the Stage.

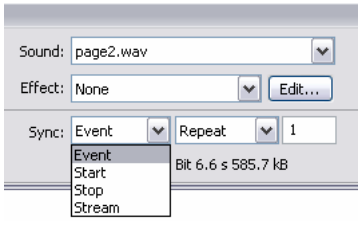
   The sound clip is added to the empty keyframe on the sounds layer. You need to extend the Timeline so that it matches the length of the sound clip. The sound is represented by a waveform line. The end of the waveform line is the end of the sound.



   Extend the Timeline until it contains enough frames to play the entire page2.wav file. If you are creating the "Why Do Leaves Change Colour?" narrative, you will need to extend the timeline to frame 86.

   To add frames, click a frame farther down the Timeline and select **Insert** > **Frame** (or press the **F5** function key). Don't worry if you overshoot and include some empty frames after the end of the waveform line. You can remove frames by holding down **Shift** and pressing **F5**.

8. Click the second keyframe to select the sound clip. Make sure **Event** is selected in the **Sync** pop-up menu on the Property inspector.



   Sounds that reside within movie clips or buttons should be Event sounds. Event sounds download entirely before they begin to play.

9. Position the playhead in frame **1** and press **Enter** (Windows) or **Return** (Macintosh) to play the movie clip and hear the sound.

Using Actions to Control Sound

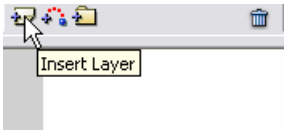
When the pages of your narrative include sound, it's a good idea to start each new page with an action that stops all current sounds from playing. This prevents your sound clips from overlapping and interfering with each other. The action that does this is called *stopAllSounds*; you should add this action to the first frame of the movie clip Timeline.

A good way to keep your Timeline organised is to add a separate layer for actions.

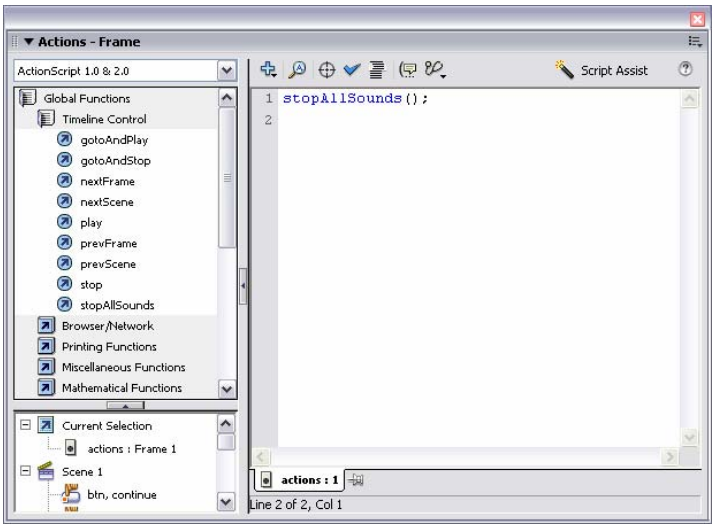
To use actions to control sound:

1. Insert a new layer on the Timeline and name it *actions*.

   To insert a new layer, click the **Insert Layer** button.



2. Click frame **1** on the actions layer.
3. Select **Window > Actions** to open the Actions panel.
4. Make sure that the **Global Functions** folder and the **Timeline Control** folder in the Actions toolbox are expanded.
5. Double-click the ***stopAllSounds*** action to add it to the Script pane.



   The action is added to frame 1 on the actions layer, as you can tell by the lowercase *a*. When the movie clip begins, any sounds that are currently playing will be stopped.

6. Click the last frame on the actions layer, and insert a blank keyframe.
7. Insert a ***stop*** action using the Actions panel.

   The Timeline now contains two actions: one that stops all sounds at the beginning and another that stops the movie from looping when it reaches the end.

8. Close the Actions panel.
9. Save the document.

Co-ordinating Graphics and Animation with Sound

Now that your sound clip is in place, add graphics, text, and animation specified in your script. Using your storyboard and script as a guide, add the graphics and animation for page 2 of your narrative.

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Remember, motion tweens will not work on layers with ungrouped shapes or on layers that contain more than one symbol. If you want to animate two separate symbols, place them on separate layers.

If you are creating the “Why Do Leaves Change Colour?” narrative, follow the steps in the next section to create an animated tree symbol. The leaves on the tree will change colour to match the words in the script. Since the trunk will not change colour, create the tree as two parts on two separate layers on the Timeline.

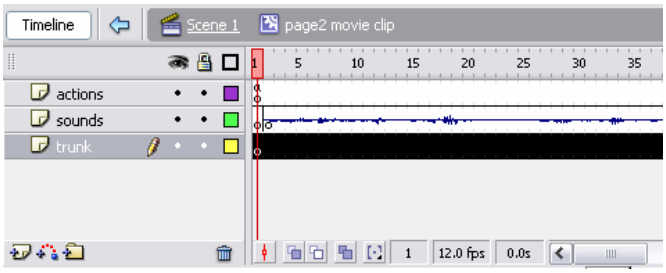
This lesson gives you the opportunity to practise drawing shapes, creating symbols, creating multiple layers for your animations, and using motion tweens to change colour over time.

To draw the tree graphic:

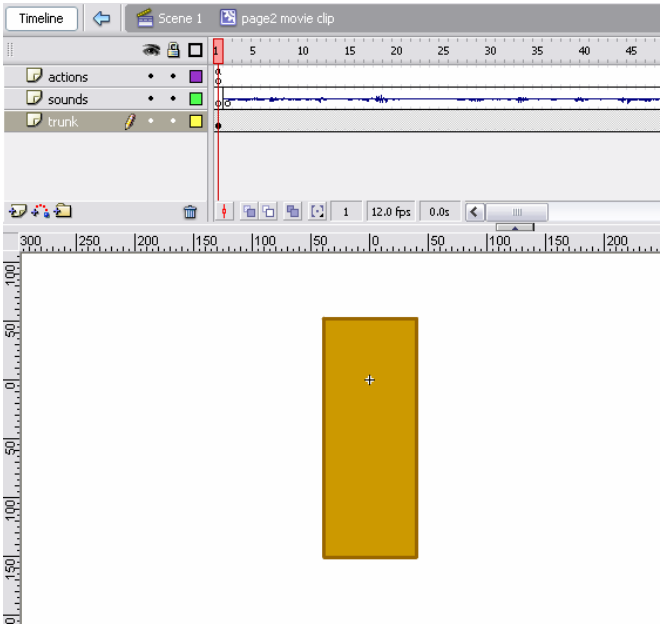
1. Add a new layer on the Timeline and name it *trunk*.

   This is where you will create the tree trunk.

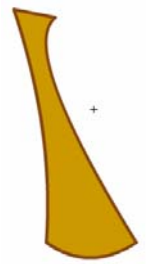
2. Drag the **trunk** layer to position it below the sounds layer.



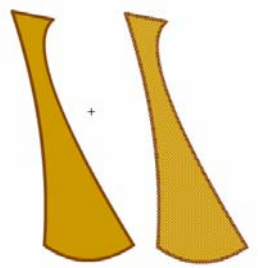
3. Select the **Rectangle** tool.
4. In the Colors section of the Tools panel, select dark brown (#996600) for the stroke colour. Select a lighter shade of brown for the fill colour.
5. Drag a rectangle approximately the size of the tree trunk.
6. On the Property inspector, select a Stroke height of **3**.
7. Click the **trunk** layer to apply the stroke height change.



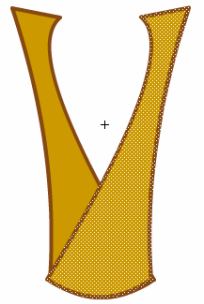
8. With the Selection tool, drag the edges and corners of the rectangle in slightly and drag the bottom edge of the rectangle down slightly to form the base of the tree trunk and a branch. (You might want to look at the next few illustrations to see how the construction progresses.)



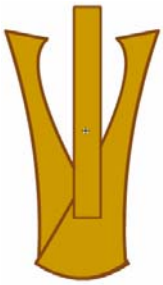
9. Select the shape by double-clicking it; then copy and paste the shape to create a copy.



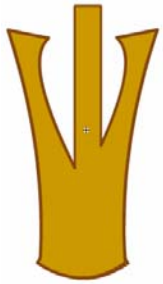
10. With the copy of the shape selected, select **Modify > Transform > Flip Horizontal**.
11. Drag the copy until the bases of the tree trunks overlap.



12. Draw another rectangle to create the middle branch of the trunk.



13. With the Selection tool, click any unwanted lines and press **Delete** or **Backspace** to remove them.



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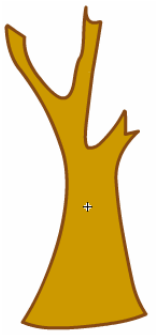
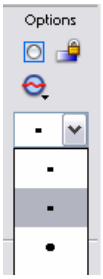
14. With the Selection tool, drag the edges and corners of the shape until it resembles a tree trunk with three branches.



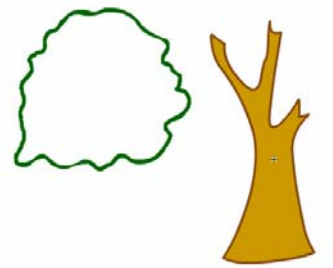
15. Double-click the shape to select it and select **Modify > Convert to Symbol**.
16. Name the symbol *tree trunk*, select **Graphic** as the Type, and click **OK**.
17. Add a new layer on the Timeline and name it *treetop*.

    Because the animation will change the colour of the leaves, the treetop needs to be a separate symbol on a separate layer.
18. Select the first frame on the treetop layer.
19. Select the **Brush** tool.

    The Options section in the Tools panel shows the modifiers for the Brush tool.
20. On the Brush Size pop-up menu, select the smallest size but one.

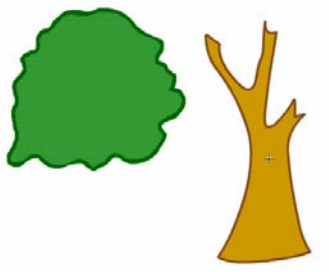


21. In the Colors section in the Tools panel, select dark green (#006600) for the stroke colour.
22. Drag to draw the outline of the treetop. Do not overlap the tree trunk as you draw.



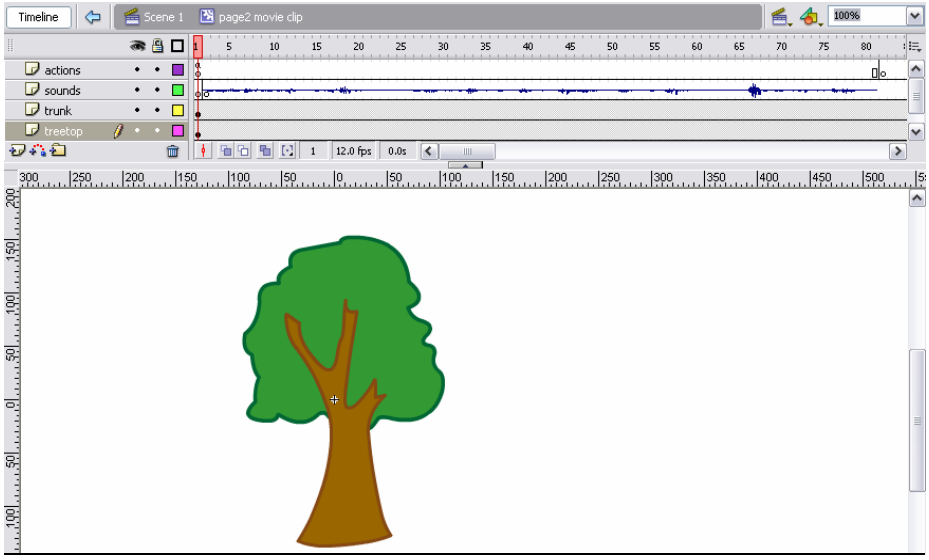
23. Select the **Paint Bucket** tool.
24. On the Property inspector, select a lighter shade of green (#339933) for the fill colour.
25. Click inside the treetop outline.

Since the shape is a closed path, the area is filled with the selected Paint Bucket colour.



26. Using the Selection tool, double-click the treetop outline to select both the paint line and the light green fill.
27. Convert the treetop shape to a graphic symbol and name it *treetop*.
28. Drag the **treetop** symbol on top of the tree trunk.

    The tree trunk should appear in front of the treetop. To do this, you must arrange the layers on the Timeline.
29. Drag the **trunk** layer to position it above the treetop layer on the Timeline.



30. Fine-tune the position of the symbols as necessary.

To make the treetop change colour:

1. Add a keyframe at the last frame on the treetop layer.
2. Click the treetop to select it.
3. On the Property inspector, select **Color** > **Tint**.
4. Use the color picker beside the color box to select a golden yellow (#FFCC00)
5. Set the tint amount to **83%**.

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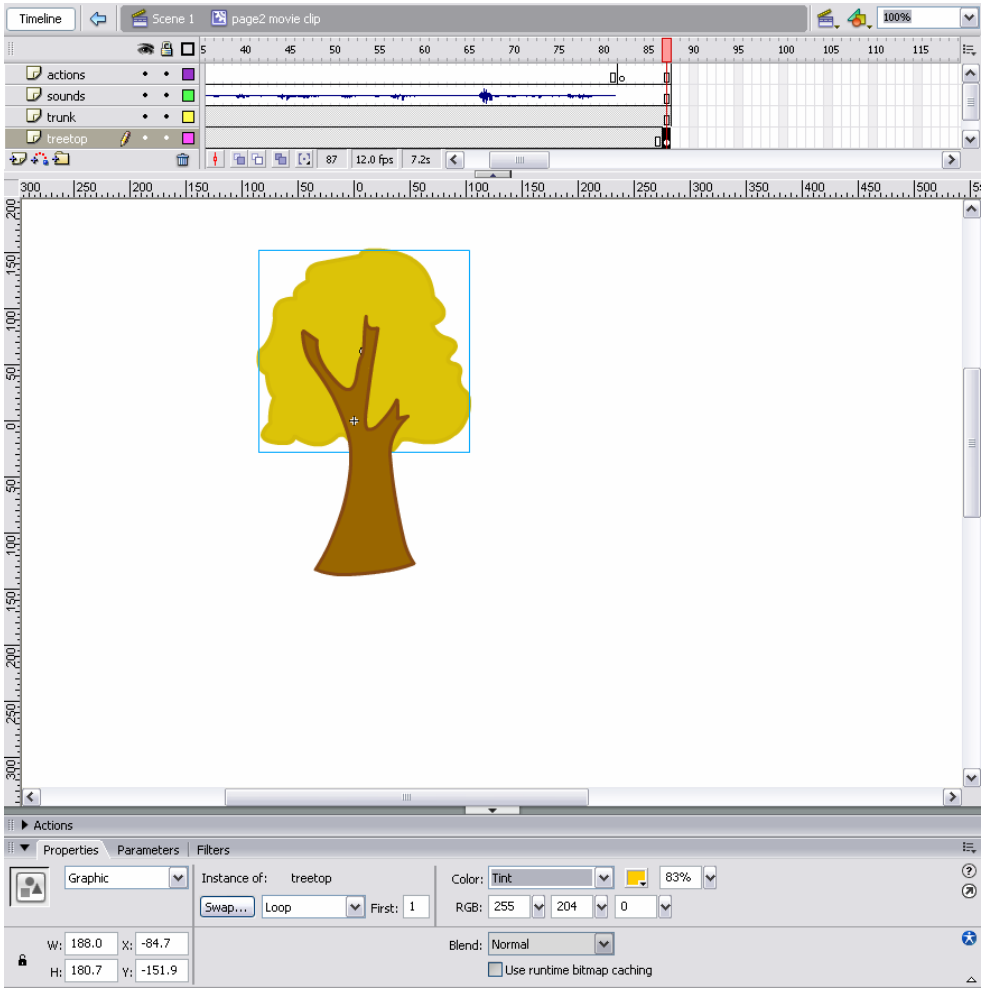
At 83% tint, the green treetop looks golden yellow.

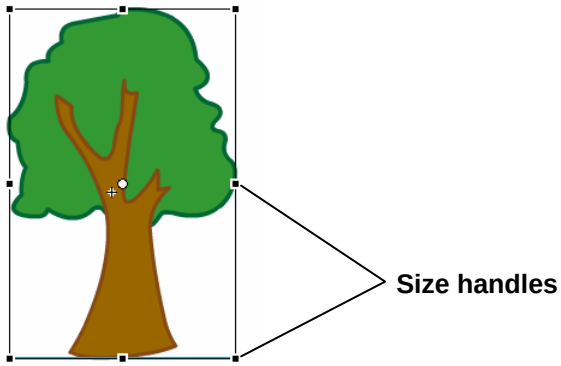


6. Click anywhere between the keyframes on the treetop layer and select **Insert** > **Timeline** > **Create Motion Tween**.
7. Position the playhead in frame **1** and press **Enter** (Windows) or **Return** (Macintosh) to preview the page2 movie clip.
8. Click **Scene 1** to return to the main Timeline.
9. Save the document.

To add the movie clip symbol to the narrative:

1. Click frame **2** on the Pages layer.
2. Drag the **page 2 movie clip** symbol from the library onto the Stage.
3. Select the **Free Transform** tool.

4. Drag the corner size handles to adjust the size of the tree so that it fits on the page.



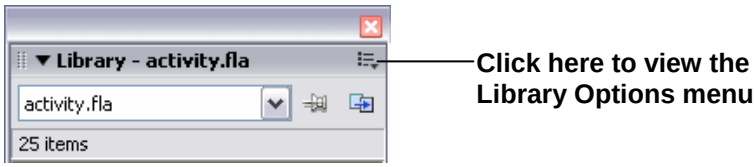
To maintain the ratio of height to width, hold down **Shift** as you drag a corner handle.

Duplicating Symbols

The movie clip you created for page 2 contains sound. If you place several copies of the symbol on the same page, the sound level increases because there are multiple copies of the sound clip playing at the same time. To use more than one animated tree without increasing the sound volume, duplicate the symbol and delete the sound. Then you will have two animated trees, one with sound and one without.

To duplicate a symbol:

1. Click the **page 2 movie clip** symbol on the Library panel and select **Duplicate** on the Library Options menu.



The Duplicate Symbol dialogue box opens.

2. Name the duplicate symbol *animated tree* and click **OK**.
3. Double-click **animated tree** on the Library panel to edit the symbol.
4. Delete the sounds layer. To do this, select the sounds layer in the movie clip and click the **trashcan icon** below the list of layer names.
5. Click **Scene 1** to return to the main Timeline.
6. Select keyframe **2** on the Pages layer, and then drag four instances of the **animated tree** symbol onto the Stage.
7. Resize and arrange the instances as desired.

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8. To change the stacking order of objects, select an object, select **Modify > Arrange,** and make a selection from the Arrange submenu. To send one object behind the others, select **Send to Back**. To bring the object to the foreground, select **Bring to Front**.

9. Select **Control > Test Movie** and view pages 1 and 2 of the narrative.
10. Save and close the document.

Lesson 6

Building Additional Narrative Pages

Approximate completion time: 80 to 90 minutes

So far, you have created page 1 (the title page) and page 2 of your narrative. In this lesson, use your storyboard as a guide for building the remaining pages of your narrative.

Make sure that the template contains as many pages as you have designed in your storyboard. To add a page, select the last keyframe on the Pages layer, and select **Insert > Timeline > Keyframe**. To delete a page, click the last frame on the top layer, hold down the **Shift** key, and click the last frame on the bottom layer. This selects the last frame on every layer. Then select **Edit > Timeline > Remove Frames**.

General Procedure for Building Pages

The general procedure for building the remaining pages of your narrative includes the following three major strategies.

Replacing Text

Each page of the Narrative template includes a placeholder for text. You can replace it, add additional text boxes, or delete it. Use the Property inspector to change font, colour, size, and so on. Use the Selection tool to place the text in the desired position on the Stage.

Creating Movie Clips

Remember that the main Timeline of the Narrative template includes one keyframe for each page on the Pages layer. To add animation to a page without extending the Timeline or adding new layers, create a movie clip symbol that includes the animation and sound elements you planned for that page. Then add that symbol to the appropriate frame on the Pages layer of the main Timeline. To create more pages in addition to the four pages in the template, insert extra keyframes on the Pages layer.

Importing Sound and Images

As you build movie clips for each page of your narrative, import the sound and images that you plan to use. You can also create new images with the drawing tools and techniques you learned in the previous activities. If you plan to reuse the graphics you created for pages 1 and 2, you can drag instances of the graphic symbols from the library. Remember to place sound and images on separate layers.

When you import sound, the sound clips are added to the library automatically.

If you are building a narrative that you have designed yourself, apply the lessons you have learned and follow these three strategies to complete the remaining pages of your narrative. (You might want to look at the detailed steps for completing the sample narrative to remind yourself of such things as adding actions to each page.) When you have finished all your pages, continue to Lesson 7 to learn how to make a movie accessible to people with disabilities.

If you are creating the “Why Do Leaves Change Colour?” narrative, continue working through this lesson. The next section includes steps for completing pages 3–5.

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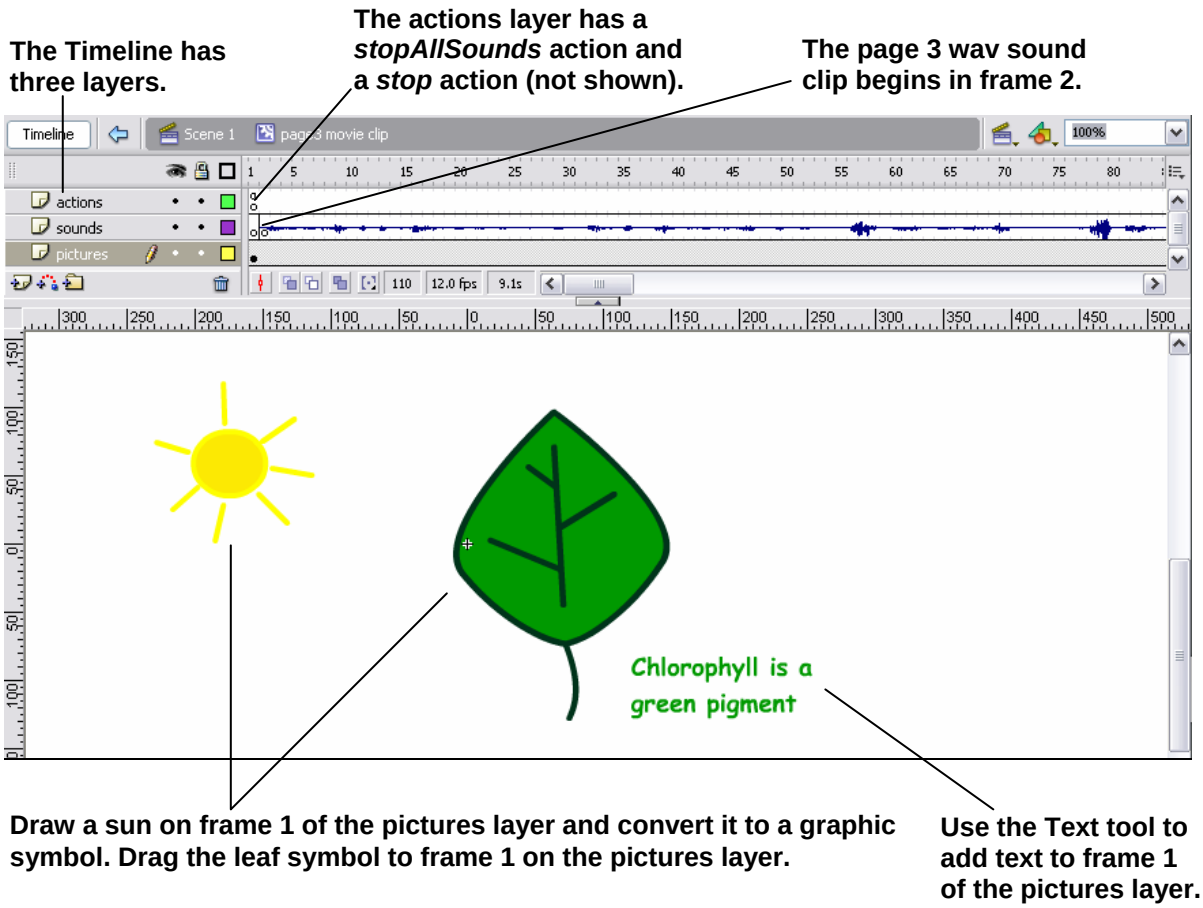
Completing the “Why Do Leaves Change Colour?” Narrative

On page 3 of the sample narrative, the viewer sees a stationary leaf, a sun, and text (Chlorophyll is a green pigment). This page contains a sound clip but no animation.

To complete the third page of “Why Do Leaves Change Colour?”:

1. Open your Flash narrative document.
2. Click frame **3** on the Pages layer of the main Timeline.
3. Use the Text tool to select the temporary text and type *Leaves contain different colours, known as pigments. Leaves look green because the green pigment, chlorophyll, is strongest. Chlorophyll is produced in response to sunlight.*
4. Import the **page3.wav** sound file (if you didn’t do this in the previous lesson).
5. Delete the **Place your image here** text.
6. Create a new movie clip symbol and name it *page3 movie clip.*
7. Use the following illustration as a guide as you create the *page3 movie clip* symbol.


The Timeline has three layers.
The actions layer has a stopAllSounds action and a stop action (not shown).
The page 3 wav sound clip begins in frame 2.
Timeline
Scene 1
page3 movie clip
100%
actions
sounds
pictures
12.0 fps
Chlorophyll is a green pigment
Draw a sun on frame 1 of the pictures layer and convert it to a graphic symbol. Drag the leaf symbol to frame 1 on the pictures layer.
Use the Text tool to add text to frame 1 of the pictures layer.

8. Insert layers named *pictures*, *sounds*, and *actions* on the page3 movie clip Timeline.
9. Insert a keyframe at frame **2** on the sounds layer and drag the **page3.wav** sound clip from the library to the Stage.
10. Insert frames on the sounds layer to display the entire sound clip.
11. On the Property inspector, set the **Sync** for the sound clip to **Event**.

12. Extend all other layers on the Timeline to match the length of the sounds layer.
13. On the actions layer, insert a keyframe at the last frame. Add a *stopAllSounds* action to the first frame and a *stop* action to the last frame.
14. In the first frame on the pictures layer, use the Circle tool and the Pen tool (or other drawing tool) to draw a sun with rays extending from it.
15. Select all parts of the sun drawing. Select **Modify > Group** to group the parts into a single drawing. Then convert the drawing to a graphic symbol.
16. On the pictures layer, add the leaf by dragging an instance of the **leaf** symbol from the library. Add the text label *Chlorophyll is a green pigment.*

    Because this page will not have any animation, you can put all the pictures and text on a single layer.
17. Click **Scene 1** to return to the main Timeline.
18. Select frame **3** on the Pages layer, and then drag the **page3 movie clip** symbol from the library to the Stage.
19. To adjust the placement of objects in the movie clip, double-click an object (on the Stage) to edit the page3 movie clip symbol.
20. In symbol-editing mode, change the placement of objects in the movie clip as you prefer.
21. Click **Scene 1** to return to the main Timeline.
22. Save your narrative document.

To complete page 4 of "Why Do Leaves Change Colour?":

On this page the viewer sees a large leaf, a tree with leaves, a sun, text labels (*Sunlight, Carbon Dioxide, Water, Food*), and arrows extending toward and away from the leaf. There is an animation in which arrows representing the sun, carbon dioxide, and water move toward the leaf and the arrow representing food moves away from the leaf, down the trunk of the tree.

1. Click frame **4** on the Pages layer on the main Timeline.
2. Use the Text tool to select the temporary text and type *Chlorophyll helps leaves to absorb sunlight so that they can turn water from the ground and carbon dioxide from the air into food. This process is called photosynthesis.*
3. If you want to apply italics or bold to text, select the text and click the **Italic** button or the **Bold** button on the Property inspector.
4. Import the **page4.wav** file (if you didn't do this in the previous lesson).
5. Delete the placeholder for images.
6. Create a new movie clip symbol and name it *page4 movie clip.*

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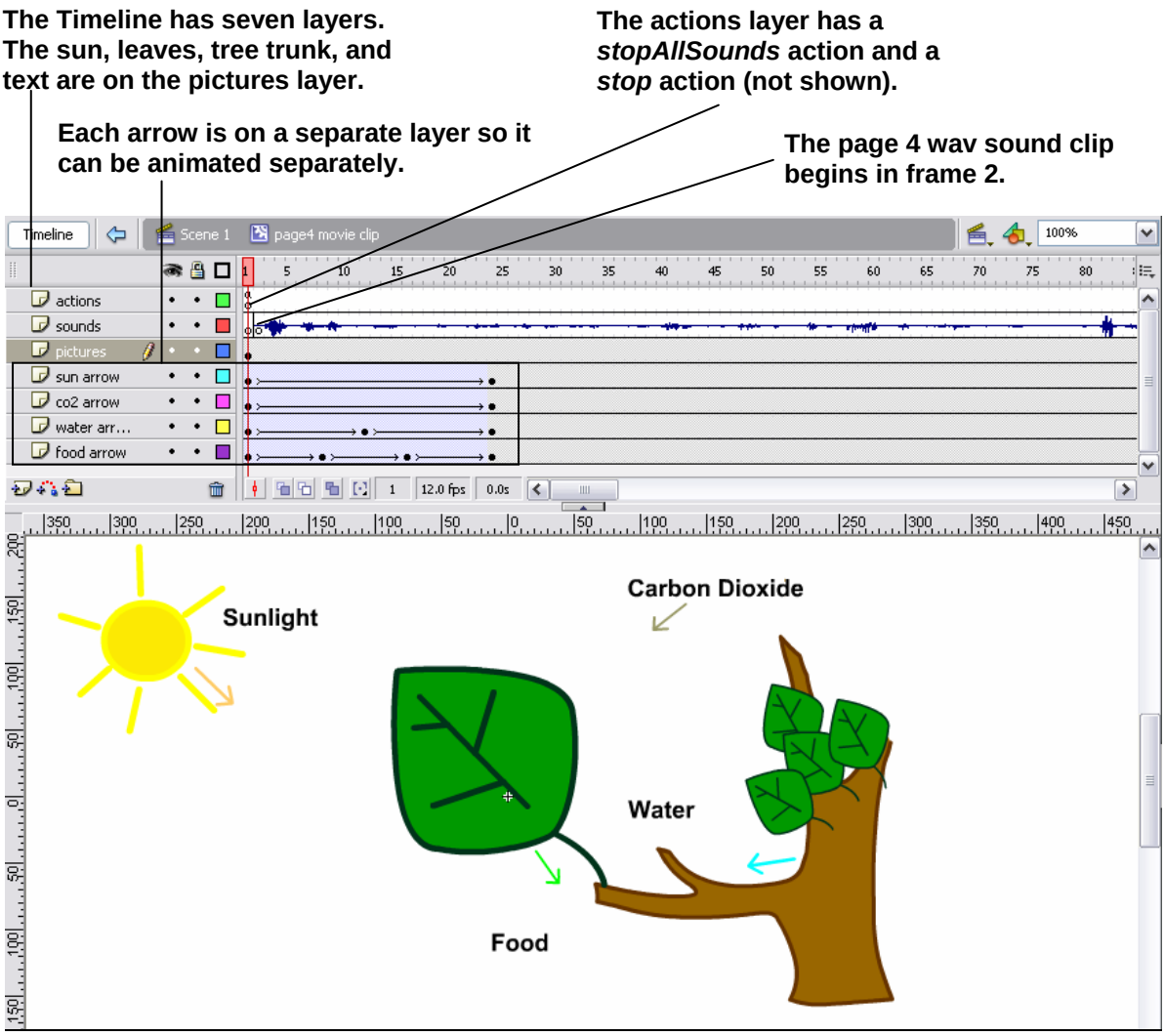
7. Use the following illustration as a guide as you create the page 4 movie clip symbol.



Each arrow is on a separate layer so that it can be animated separately.

8. Insert layers named *pictures*, *sounds*, and *actions* on the page4 movie clip Timeline.
9. Insert a keyframe at frame **2** on the sounds layer, and drag the **page4.wav** sound clip from the library to the Stage.
10. Extend the sounds layer to display the entire sound clip.
11. On the Property inspector, set the **Sync** for the sound clip to **Event**.
12. Extend all other layers on the Timeline to match the length of the sounds layer.
13. On the actions layer, insert a keyframe at the last frame. Add a *stopAllSounds* action to the first frame and a *stop* action to the last frame.
14. Select the first frame on the pictures layer, and drag an instance of the **sun** symbol from the library to the Stage.
15. Use the drawing tools to draw a tree trunk on the pictures layer. (If you prefer, you can drag an instance of the tree trunk symbol from the library to the Stage and modify it as desired. However, if you double-click the tree trunk and edit the symbol, you will change all instances of this symbol in your document.)

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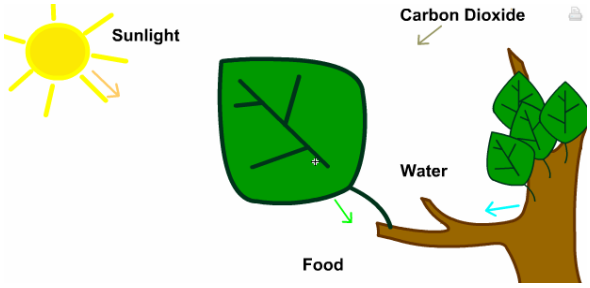
16. Use **Modify > Group** to group the parts that make up the tree trunk drawing, and convert the drawing to a symbol. (If you are using the tree trunk symbol you created previously, skip this step.)
17. Add an instance of the **leaf** symbol to the pictures layer and position it in the centre of the Stage.

    To change the size of the leaf instance, select the **Free Transform** tool and drag the selection handles.
18. Add four more instances of the **leaf** symbol to the pictures layer. Resize them as necessary and then position them over the tree trunk.
19. Add text labels to the pictures layer: *Sunlight*, *Carbon Dioxide*, *Water*, and *Food*.
20. Create a new graphic symbol and name it *arrow*.
21. Use the drawing tools to create a small arrow.
22. Open the **page4 movie clip** symbol in the library by double-clicking it.
23. Insert four new layers named *food arrow*, *water arrow*, *co2 arrow*, and *sun arrow*.
24. Click the first keyframe on the sun arrow layer and drag an instance of the **arrow** symbol to the Stage. Place the arrow beside the sun graphic.
25. Select the instance of the **arrow** symbol on the Stage, and then select the **Free Transform** tool.
26. Move the pointer near a corner handle. When the pointer changes to a curved arrow, drag to rotate the arrow symbol.

    The arrow symbol should point from the sun to the centre leaf.

27. Use the Property inspector to change the tint of the arrow.
28. Add instances of the **arrow** symbol to the food arrow layer, the water arrow layer, and the co2 arrow layer. Rotate and position the arrows. Use a different tint colour for each of the arrows. (See the following illustration.)



29. To create a two-second animation of the arrows, insert a keyframe at frame **25** on each of the four arrow layers.

    To create a longer or shorter animation, multiply the number of seconds by 12 and then add 1. Use the result as the frame number at which to insert the keyframe on each layer.
30. Change the position of the arrow in frame **25** on the layers for the sun arrow, the water arrow, and the co2 arrow by moving the arrow closer to the leaf.
31. Change the position of the food arrow so that it moves away from the leaf.

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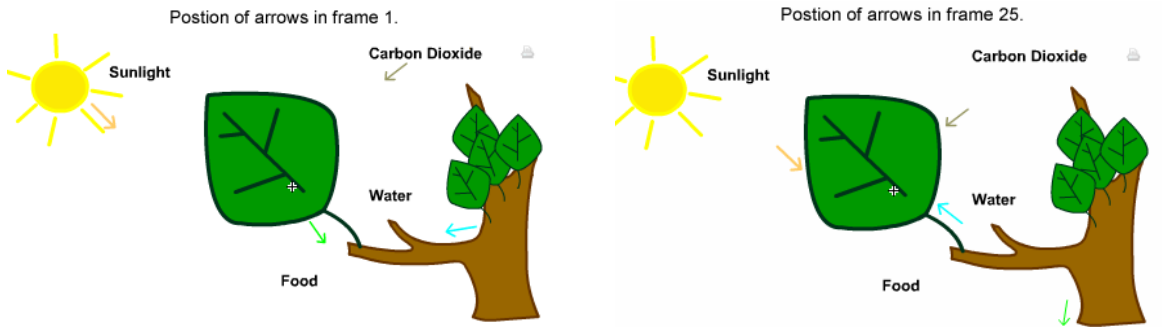
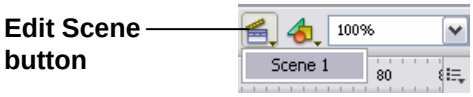
32. Add a motion tween to each arrow layer.



The tweens move each arrow progressively from its position in frame 1 to its position in frame 25.

33. Position the playhead in frame **1** and press **Enter** (Windows) or **Return** (Macintosh) to preview the animation. Make adjustments to the starting or ending arrow positions as necessary.

34. Click the **Edit Scene** button, and click **Scene 1** to return to the main Timeline.



35. With frame **4** on the Pages layer selected, drag the **page4 movie clip** symbol from the library to the Stage.

36. Double-click the **page4 movie clip** symbol to make adjustments as necessary.

37. Save your narrative document.

To complete page 5 of "Why Do Leaves Change Colour?":

On this page, the viewer sees a green leaf gradually changing colour to yellow.

1. Click frame **5** on the Pages layer on the main Timeline.

   Use the Text tool to highlight the temporary text and type *In autumn, there is less sunlight for the leaves to absorb, so the chlorophyll breaks down. Then the colours of other leaf pigments begin to show.*

2. Import the page5.wav file (if you didn't do this previously).

3. Delete the placeholder for images.

4. Create a new movie clip symbol and name it *page5 movie clip.*

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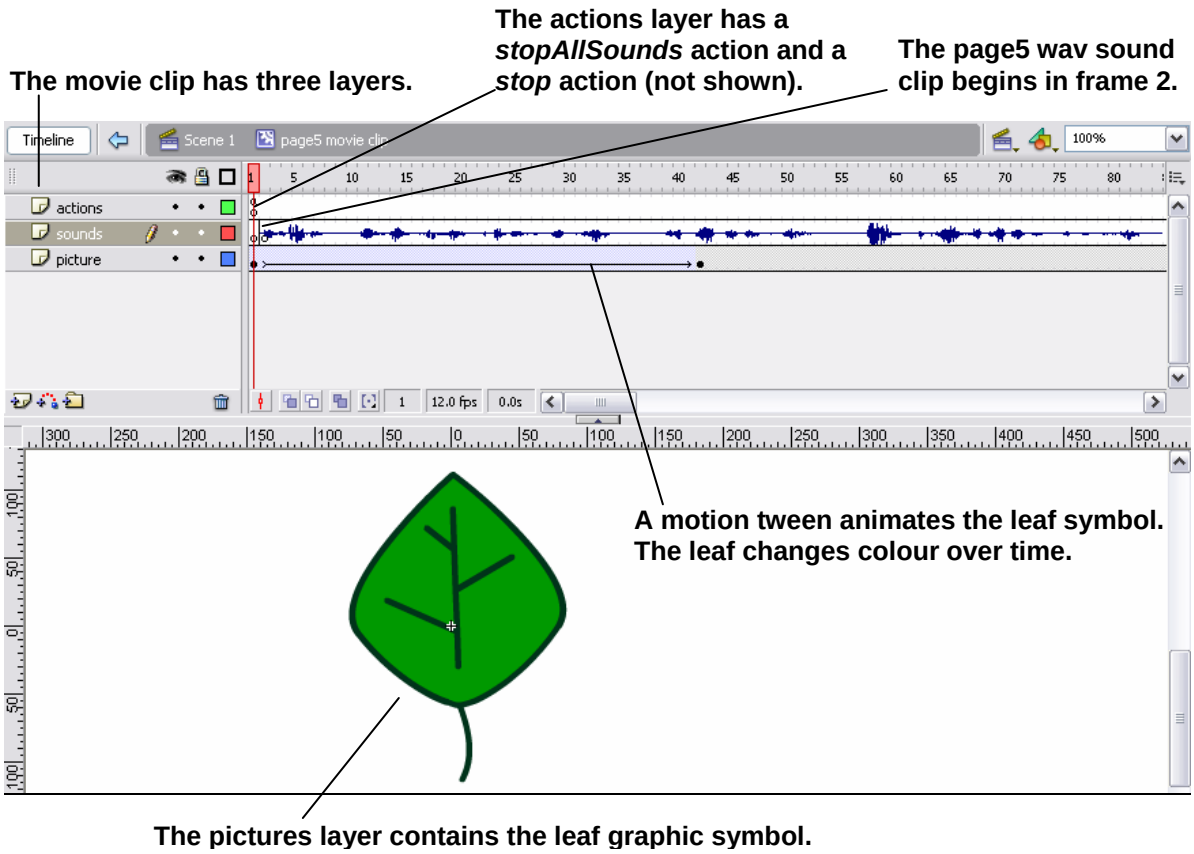
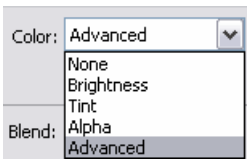
5. Use the following illustration as a guide as you create the page5 movie clip symbol.


The movie clip has three layers.
The actions layer has a *stopAllSounds* action and a *stop* action (not shown).
The page5 wav sound clip begins in frame 2.
Timeline
Scene 1
page5 movie clip
100%
actions
sounds
picture
12.0 fps
0.0s
A motion tween animates the leaf symbol. The leaf changes colour over time.
The pictures layer contains the leaf graphic symbol.

6. Insert layers named *pictures*, *sounds*, and *actions* on the page5 movie clip Timeline.
7. Insert a keyframe at frame 2 on the sounds layer, and drag the **page5.wav** sound clip from the library to the Stage.
8. Extend the sound layer to include the entire sound clip.
9. Set the Sync for the sound clip to **Event** by using the Property inspector.
10. Extend all the other layers on the Timeline to match the length of the sounds layer.
11. On the actions layer, insert a keyframe at the last frame. Add a *stopAllSounds* action to the first frame and a *stop* action to the last frame.
12. Add an instance of the leaf graphic to the pictures layer. Use the Free Transform tool to adjust the size of the leaf as desired.
13. To create a colour-change animation that lasts between 3 and 4 seconds, add a keyframe at frame **42** on the pictures layer.

    To create a longer or shorter animation, multiply the number of seconds by 12 and then add 1. Use the result as the frame number for inserting the keyframe on each layer.
14. With frame 42 on the pictures layer selected, use the Selection tool to select the leaf.
15. On the Property inspector, select **Advanced** from the Color pop-up menu.



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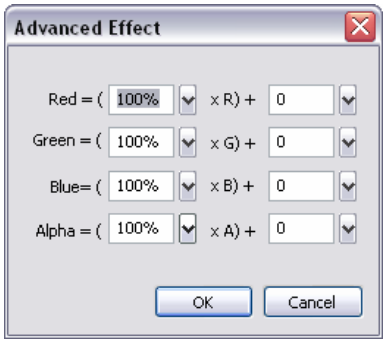
16. Click **Settings**.

    The Advanced Effect dialogue box opens. You can use this dialogue box to make precise adjustments to the colour settings of the selected symbol. (You might need to drag the dialogue box out of the way so that you can see the changes as you apply them.)



17. Make changes to the values for Red, Green, and Blue to explore the resulting colour changes. Make your selections in the Advanced Effect dialogue box and click **OK**.
18. Create a motion tween between frames **1** and **42** on the pictures layer.
19. Place the playhead in frame **1** and press **Enter** (Windows) or **Return** (Macintosh) to preview the animation.
20. Click **Scene 1** to return to the main Timeline.
21. With frame 5 on the Pages layer selected, drag the **page5 movie clip** symbol from the library to the Stage.
22. Make any adjustments to the movie clip on the page and then save the document.
23. Select **Control > Test Movie**.
24. View each page of the narrative.
25. Select **File > Close** to close the movie and return to the document.
26. Save your narrative document.

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Lesson 7

Making a Movie Accessible

Approximate completion time: 40 minutes

You can use Flash to make your narrative movie accessible to people with disabilities. For example, people with vision problems use screen-reader software that provides a spoken description of the contents of the screen. In Flash movies, you can decide which objects in your movie will be read by screen readers.

The following objects are accessible in Flash movies by default and are included in the information that Macromedia Flash Player provides to the screen-reader software:

- Text
- Input text fields
- Buttons
- Movie clips
- Entire movies

Turning Accessibility On and Off

Your Flash movie is accessible to screen readers by default. Static text is read automatically. Other objects, such as buttons and movie clips, are announced by using a label that Flash applies to the object. Default labels are general terms such as "button," but you can provide more specific terms.

You can use the Accessibility panel to turn accessibility on or off for the entire movie or for selected objects. The following are some best practices for making objects accessible:

- Provide your own name and description for each accessible object, except text. (Because text is read by screen readers, you don't need to provide descriptions.)
- Add descriptive labels to buttons, such as *next* or *previous*.
- Add labels and descriptions to movie clips if they depict an animation that is not explained in text on the page.
- Turn accessibility off for an object, such as an animation, that does not add new information to the explanatory text on a page.

To turn accessibility on and off:

1. Click frame **1** of the Pages layer and click away from the Stage to deselect the objects on the title page.

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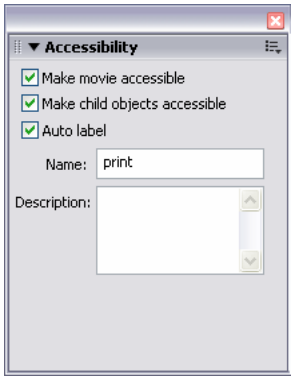
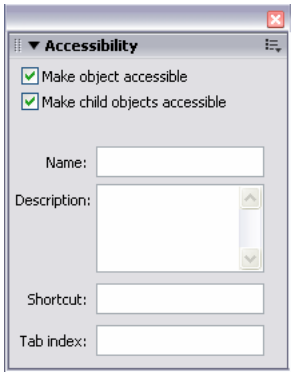
2. Select **Window > Other Panels > Accessibility**.

   The Accessibility panel opens. By default, the entire movie is accessible, and automatic labelling is turned on.



3. On the Stage, click the **page1 movie clip** symbol, such as the leaf in the "Why do Leaves Change Colour?" narrative.

   The Accessibility panel changes to show the options for the selected object.



4. Deselect the **Make object accessible** option to hide the animated leaf from screen readers.

   Since the leaf animation does not add information to the title page, you can hide the movie clip from screen readers.

5. Click the title text to select it.

   You cannot apply accessibility options to static text. If your movie is accessible, static text is read by screen readers automatically.

6. Click away from the Stage to deselect the text.

7. If the _controls layer is locked, click the **padlock icon** to unlock the layer.

8. Click the Navigation buttons in the bottom right-hand corner of the Stage.

   The *mcframeNav* movie clip symbol is made up of several other symbols and graphics. These parts of the symbol are called *child* objects. It might sound confusing if a screen reader tries to announce the movie clip with the name *mcframeNav* together with all of its parts.

   You can provide a more descriptive name for the navigation buttons, and you can hide the child objects from screen readers.

9. On the Accessibility panel, deselect the **Make child objects accessible** option.

10. Click in the **Name** text box and type *navigation buttons*.

11. In the **Description** text box, type *Press the left and right arrow keys to move between pages*.

Screen readers will read this information to make your narrative movie more accessible.

12. Click the **padlock icon** for the _control layer to lock it.

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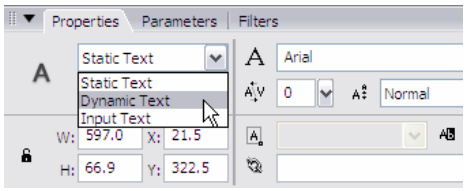
Turning Off Text Accessibility

In Flash, static text fields display text that doesn't change, and dynamic text fields are normally used to display text that is updated dynamically, such as sports scores, stock quotes, or weather reports.

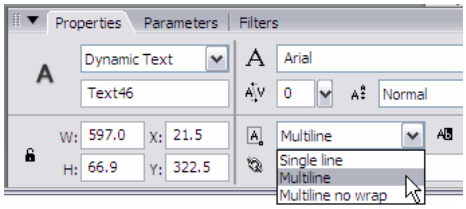
Screen readers read static text automatically. To hide static text from a screen reader, you must first make the text dynamic. For example, pages 2 to 5 of "Why Do Leaves Change Colour?" include both text and sound which say exactly the same thing. If the screen reader reads the text, it will interfere with the recorded sound clips. You can prevent this by turning off accessibility for either the movie clips or the text.

To turn off text accessibility:

1. Click frame **2** of the Pages layer and click away from the Stage to deselect the objects on the title page.
2. Click the text to select it.
3. On the Property inspector, select **Dynamic Text** from the text type pop-up menu.



4. Make sure the Dynamic text box is set to **Multiline**, so that all text will display.



5. On the Accessibility panel, deselect **Make object accessible**.

   The text box will not be read aloud by a screen reader.
6. Turn off accessibility for the text objects on pages 3, 4, and 5.
7. Close the Accessibility panel.
8. Save your narrative document.

Lesson 8

Testing and Publishing a Narrative

Approximate completion time: 15 minutes

So far you have tested your narrative using the Control > Test Movie command. In this lesson, you publish your movie. Testing and publishing are similar, but publishing offers more options and greater control over the final movie.

Before publishing, you should proofread the text and test your work.

Proofreading the Narrative

There is no better way to proof your narrative than to read each page carefully several times.

- Read text slowly and aloud to check for spelling and grammar errors.
- Have someone who is less familiar with your project proofread the narrative as well.
- If you would like to check the spelling of your text, select **Text > Check Spelling**.

Conducting a Technical Test

A technical test answers questions such as:

- Do all the buttons work properly?
- Do the text, graphics, animation, and sound match the storyboard?
- Are text, graphics, animation, and sound co-ordinated correctly?

With your narrative open in Flash, select **Control > Test Movie** and conduct a technical test by answering each of these questions.

You can also use the Publish Preview command to test how your movie will play when it has been published. For example, you can preview the movie in an HTML file if you plan to publish it as an HTML file for the web.

To preview a narrative in a web browser:

1. Select **File > Publish Preview > HTML**.

   An HTML document containing the SWF file for your movie opens in your default web browser.

2. Click through the pages of your narrative to see how it runs in a web browser. Make sure that the buttons function properly and that the text, graphics, animations, and sound are co-ordinated correctly.
3. Close the browser window.

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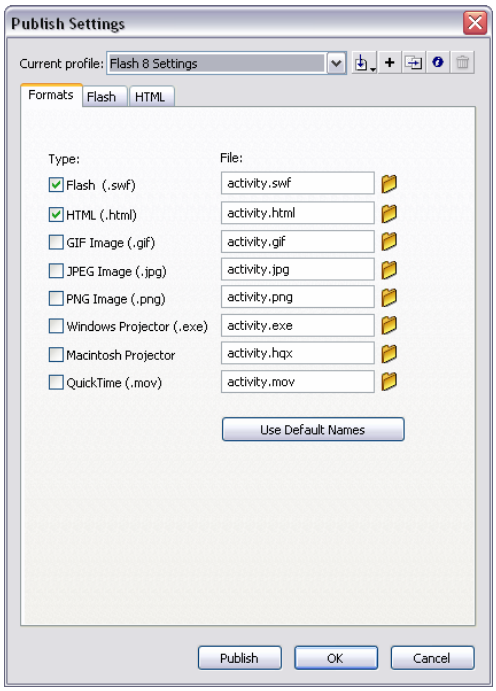
Publishing the Movie

Movies you develop by using Flash have extension .fla and can be opened and edited in Macromedia Flash 8.

To enable other people to see your movie, you must publish it in a format that is accessible by other application software, such as the SWF format (for Flash Player), the HTML format (for a web browser that has Flash Player installed), or a stand-alone format (such as a Windows Projector file or a Macintosh Projector file). You use the Publish Settings dialogue box to determine the formats in which it is to be published.

To determine publish settings:

1. Select **File** > **Publish Settings** on the menu bar.
2. The Publish Settings dialogue box opens with the Formats tab selected.



3. Select the types of files you want to produce when you publish the movie.
4. If you want to change the names of any of the files to be published, edit the filenames.

   By default, every file type uses the same name as the FLA file. Only the file extensions are different.
5. Click the **Flash** tab.

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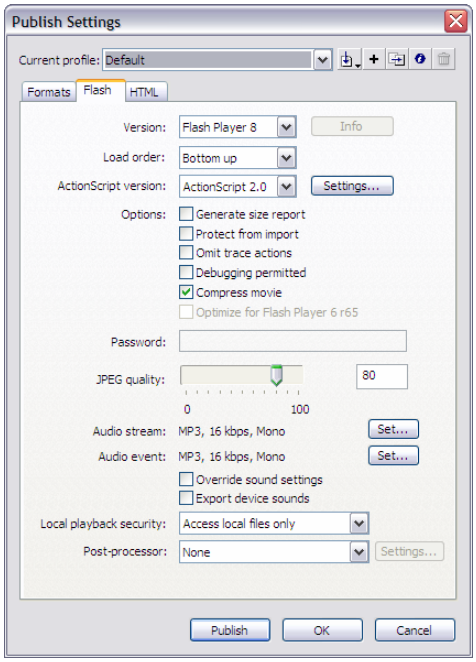
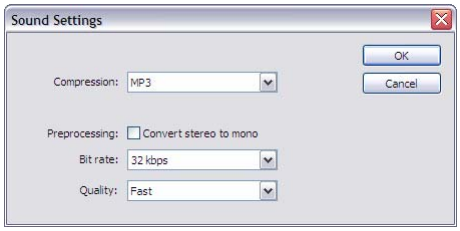
The Flash tab of the Publish Settings dialogue box opens.



6. Next to **Audio stream**, click **Set**.

   The Sound Settings dialogue box opens.



7. Select **32 kbps** from the **Bit rate** pop-up menu.
8. Deselect the **Convert stereo to mono** option.
9. Repeat steps 6–8 for **Audio event**.
10. Leave the other settings in the dialog box unchanged.
11. Click **OK** to close the Sound Settings dialogue box.
12. Click **OK** to close the Publish Settings dialogue box.

    Once you have determined your publish settings, publishing the movie is simple.

To publish the movie:

1. Select **File > Publish** on the menu bar.

   The movie is published in each of the formats you have selected in the Publish Settings dialogue box.
2. Save and close your narrative document.
3. Test each of the published files.

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